

Installation and Getting Started Guide

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Chapter 1. System Requirements

The system requirements for the eCosPro Developer's Kit are:

- Standard Intel architecture PC running Linux (tested on recent Red Hat, openSUSE and Ubuntu distributions), Microsoft Windows XP, Windows 7 and Windows 10. The 64-bit variants of Windows 7 and Windows 10, Ubuntu distributions and OpenSUSE are also supported.
- Sufficient disk space for the software (typically 1GB), and unpacking the installation files (typically 600MB). You will also need enough disk space to build eCosPro, its associated libraries, the optional tests, as well as your own application.
- 2GB of RAM and a 1.5GHz or faster Pentium processor.
- In order to use the most recent Eclipse IDE, you *must* have a Java Runtime Environment (JRE) with minimum version 1.8 installed on the host platform before you run the eCosPro installer. Windows users are also required to use the 32-bit JRE as the 64-bit JRE for Windows is currently not supported. The latest Oracle/Sun JRE may be downloaded for both Windows and Linux platforms from <http://www.java.com/> and OpenJDK may be installed through the native package managers of most Linux distributions.
- For releases of the eCospro Host Tools prior to version 4.x, 64-bit variants of Linux must have the 32-bit compatibility run-time libraries installed. If these are not present, the installer will simply exit. For example, on Ubuntu and Debian systems you must have the `ia32-libs` package installed. On Red Hat and Fedora you need to have multiple instances of the run-time libraries, which include 32-bit versions of these libraries, installed. This is often referred to as `multilib`. Similarly, for OpenSUSE the "*32-Bit Runtime Environment*" may be installed using YaST.



Warnings

- GCJ is not compatible with Eclipse.
- 64-bit JREs are not currently supported on 64-bit variants of Windows by the eCosPro CDT Plugin.
- Versions of Eclipse prior to NEON are incompatible with version 1.8 of the JRE.



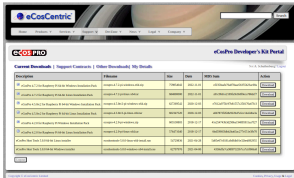
Note

`cygwin` is no longer a requirement of the eCosPro Developer's Kit for Windows hosted kits for versions 3.1 and above, with the exception of a few architectures. The architectures which still require `cygwin` use older GNU tool-chains which cannot be used natively under Windows.

Chapter 2. Downloading

If you have not requested the optional CD with your purchase of the eCosPro Developer's Kit, you will need to go to the eCosPro Developer's Kit Portal at <http://www.ecoscentric.com/portal> to download the kit and licensee file. You will need the userid (your email address) and password you were provided to login to the portal. You must use the same userid and password for logging into the *Issue Management System* of eCosPro at <https://bugzilla.ecoscentric.com/>.

Figure 2.1. eCosPro Developer's Kit Portal



The portal (see [Figure 2.1, “eCosPro Developer's Kit Portal”](#)) has three TABs:

Current Downloads

This tab displays the most recent downloads available to you, and provides a download button to initiate download of the corresponding file. The columns list the description, filename, size and MD5 checksum of each download. Archive files are listed at the top and may be expanded by pressing the [+] to reveal their contents, each item of which may also be individually downloaded. Each archive represents the complete set of tools available in an eCosPro Developer's Kit. For Windows hosted kits, the archive is in ZIP format. For Linux hosted kits, the archive is either in a tarball (.tar) or a compressed (bzip2) tarball format (.tar.bz2).



Note

If you have an eCosPro releases prior to 4.x, the last item on the list of downloadable files will be the licensee file needed for the installation of your products. This is not required for eCospro releases 4.x and above.

Support Contracts

This tab will list a table containing all the support contracts, active and expired, you have purchased. The columns list the Targets, Hosts, Releases, Support Period, Support Allocation and Support Usage of each support contract. Active support contracts are listed in green, while expired contracts are listed in red.

Other Downloads

This tab displays downloads of files that have been superseded by later releases. The format is the same as the *Current Downloads* tab.

Each installation pack typically comprises five components:

- eCosPro Release
- eCosPro Host Tools
- eCosPro GNU Toolchain
- eCosPro Eclipse
- **setup.exe** or **install.sh**

The latter two files are not available for separate download.

For upgrades and multiple target support, you only need to download the individual components not already downloaded or installed. Each component is provided as an install executable or as an EPK (eCosPro Package). A primary installer typically starts with `ecospro` followed by the version number and the abbreviated name(s) of the target platform(s).

Chapter 3. Installing

The installation process unpacks encrypted and compressed archives into a selected target directory. The contents of these archives vary from source code files and host applications through to HTML and PDF documentation. The primary eCosPro installers also create menu items within a new menu group. Each menu item is a shortcut either to various applications, such as the eCos Configuration Tool and Eclipse, or to documentation, or to a preconfigured shell environment.

The installer tracks all the files unpacked using a hidden file located in the top-level install directory. This allows the uninstaller to remove unmodified files during uninstallation, leaving modified and new files and directories behind. Do not modify or delete this file. Doing so will prevent the uninstaller from uninstalling correctly.

Installation on Linux

On Linux hosts, each component within an eCosPro Developer's Kit is provided as an installer executable which must be run on the host platform. The installer will extract the contents of each component into the specified installation location.

Root access or administrator privileges are not required in order to install the eCosPro Developer's Kit. However, if installing as root or administrator:

1. If installing from the console, without a GUI, or from an environment that does not have permission to open a new window when run as root, the installer will fall back into a text installation mode. This text installation mode may also be chosen by running the primary installer with the option `--mode text` included from the command line.
2. You must ensure that the users requiring access have appropriate permission to read files from the installed location.



Note

Current versions of eCosPro installers on Linux systems no longer register eCosPro components with the native Linux package management system.

The steps necessary to install an eCosPro Developer's Kit on Linux are:

1. Download the installation pack and extract them into a temporary directory.
2. Execute the accompanying **install.sh** script located in the tarball, or the primary installer associated with the eCosPro Developer's Kit. For example:

```
/tmp/ecospro-4.1.3-sama5d3x-linux-x64 $ ecospro-4.1.3-sama5d3x-linux-x64-install.run
```

The remaining installers will automatically be invoked by the primary installer according to the manifest only if those components are not already installed.

3. Follow the on-screen instructions of the installer. An example walk-through is illustrated in [Chapter 4, Installation Walk-through](#).

For example: if the tarball archive was called `ecospro-4.1.3-sama5d3x-linux-x64.tar`, the following set of commands illustrate extracting the archive and invoking the installer:

```
~ $ cd /tmp
/tmp $ tar -xvf ~/Downloads/ecospro-4.1.3-sama5d3x-linux-x64.tar
ecospro-4.1.3-sama5d3x-linux-x64/install.sh
ecospro-4.1.3-sama5d3x-linux-x64/ecospro-eclipse-1.5.3-linux-x64-install.run
ecospro-4.1.3-sama5d3x-linux-x64/ecoshosttools-4.0.2-linux-x64-install.run
ecospro-4.1.3-sama5d3x-linux-x64/ecospro-gnutools-arm-eabi-4.7.3j-linux-x64-install.run
ecospro-4.1.3-sama5d3x-linux-x64/ecospro-4.1.3-sama5d3x-linux-x64-install.run
ecospro-4.1.3-sama5d3x-linux-x64/ecospro-4.1.3-sama5d3x-linux-x64-install.xml
```



```
/tmp $ ecospro-4.1.3-sama5d3x-linux-x64/install.sh
```

See also [the section called “Installation Tips and Notes”](#).

Installation on Windows

The eCosPro Developer's Kit for Windows comprises of a number of separate components. Although each component can be installed and upgraded separately, the normal approach for initial installation is to download the ZIP archive and run the **setup.exe** Install Launcher to install the complete set of components. Installation can only be achieved from a user account that has administrator privileges.

The steps necessary to install an eCosPro Developer's Kit on Windows are:

1. Download all the components of the eCosPro Developer's Kit that are not already installed on your system and place them into a common temporary directory on a local hard drive. Do not download them onto a network drive. If you downloaded the ZIP archive, extract the complete contents of the archive into the temporary directory on the local hard drive.
2. Execute the accompanying **setup.exe** program if you downloaded the compressed ZIP archive, or the primary installer associated with the eCosPro Developer's Kit. For example, the primary installer for eCosPro 4.1.3 for various SAMA5D3X platforms is **ecospro-4.1.3-sama5d3x-windows-install.exe**. If there is more than one primary installer, **setup.exe** will prompt you for the eCosPro release you would like to install. The remaining installers will automatically be invoked by the primary installer as required.

You may get a warning or pop-up from Windows Defender as illustrated in [Figure 3.1, “Windows 10 Primary eCosPro Installer”](#) or from Windows as illustrated in [Figure 3.2, “Windows 10 Install Launcher”](#).

Figure 3.1. Windows 10 Primary eCosPro Installer

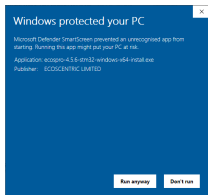
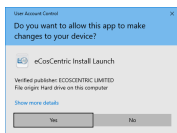
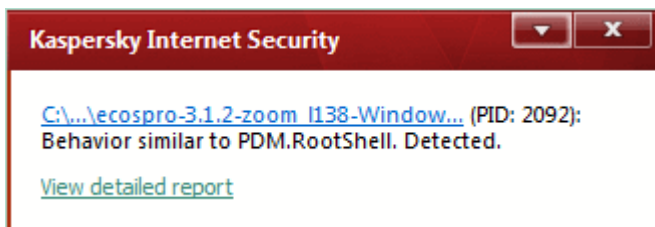


Figure 3.2. Windows 10 Install Launcher



You may also get similar warnings from Anti-Virus applications such as Norton Internet Security or Kaspersky Internet Security (see [Figure 3.3, “Example Kaspersky Internet Security Warning”](#)).

Figure 3.3. Example Kaspersky Internet Security Warning



All our Windows releases from February 2021 are signed to aid their authentication. Once you are happy with their authenticity select the appropriate options that allow the installers to continue.

3. Follow the on-screen instructions of the installer. An example walk-through is illustrated in [Chapter 4, Installation Walk-through](#).

See also [the section called “Installation Tips and Notes”](#).

MSYS2 and Windows

eCosPro Host Tools prior to version 5 each included a customized version of MSYS version 1. This was installed alongside the eCosPro Host Tools. This customized distribution is no longer required and may be replaced by any distribution of [MSYS2](#), with the following additional packages required: *make*, *tar*, *diffutils*, *ed*, *patch*.

For convenience, a base installation of the 64-bit version of [MSYS2](#) is provided within all Windows installation archives which will automatically install the required additional packages. This distribution will be installed alongside version 5 and above of the eCosPro Host Tools in any automatic installation through the primary installer or **setup.exe** in the directory `C:\msys64`.

If you wish to use this distribution but install it in a different location, run the installer for the eCosCentric MSYS2 distribution, `msys64-nnnnnnnn-install.exe`, prior to running any other installer and follow the prompts to specify the different location.

You may keep your [MSYS2](#) software up to date by running the following commands within an MSYS2 terminal:

```
pacman -Syu
pacman -Su
```

If you wish to use a different [MSYS2](#) installation:

1. Ensure that the above required additional packages are installed within your MSYS2 installation.
2. Run the eCosPro Host Tools installer.
3. Deselect the MSYS2 component.
4. During installation you will be prompted to specify the location of the MSYS2 installation. (e.g. `C:\msys64`)

This will add the `/usr/bin` sub-directory of the different MSYS2 installation to the search path of executables used by both the eCosPro Host Tools and eCosCentric Eclipse plug-in. It will also enable the creation of an MSYS2 Shell Terminal through the Configuration Tool. This shell will have both the appropriate GNU Toolchain and eCosPro Host Tools added to the search PATH.

Installation Tips and Notes



Tips

1. If certain components of the eCosPro Developer's Kit are already installed, only the installers for the components not yet installed can be downloaded and installed separately. If an installer's manifest appears alongside the installer, that must also be downloaded and placed in the same directory as the installer when it is executed. The manifest extension is `.xml` instead of the extensions `.exe` for Windows or `.run` for Linux. e.g. `ecospro-4.1.3-sama5d3x-linux-x64-install.xml`
2. Should you download the installers individually on Linux, you must also ensure the execute permission bit of each installer is set. For example:

```
/tmp/ecospro-4.1.3-sama5d3x-linux-x64 $ chmod a+rx *.run
```

3. Ensure that you have access to the internet as the installers will contact the eCosPro Developer's Kit Portal to obtain the decryption and installation keys associated with your eCosPro Developer's Kit.

4. If your development host does not have access to the internet, request a *licensee file* be sent to you by sending an email to <support@ecoscentric.com.>. In this event, you must run the primary installer with the additional parameter `--promptlicense 1`, after which you will be prompted to provide the location of the licensee file during installation.



Notes

1. Installers for eCosPro Developer's Kits prior to 4.X require you download your *licensee file* from the support portal separately and place it in a directory that may be accessed by the installers.
2. Installers for eCosPro Developer's Kits prior to version 4.X did not contain a manifest nor did Linux installer executables have the extension `.run`.

Chapter 4. Installation Walk-through

The eCosPro Developer's Kit installation process is essentially the same for both Linux and Windows. The screens displayed in this chapter, [Chapter 4, Installation Walk-through](#), are primarily those encountered during a typical installation on Windows 10. The screens on other versions of Windows, as well as Linux distributions, will be very similar.

Introduction

This section assumes you have started the installer as described in either [the section called “Installation on Linux”](#) or [the section called “Installation on Windows”](#). While root access on Linux is no longer a requirement, you must be logged on as Administrator or a user with Administrator privileges on Windows.

If the eCosPro Developer's Kit is already installed on the host, you will receive a warning pop-up and be asked if you wish to re-install, overwriting any previous installation. For further details of reinstalling components, please read [Chapter 9, Reinstalling Components](#).

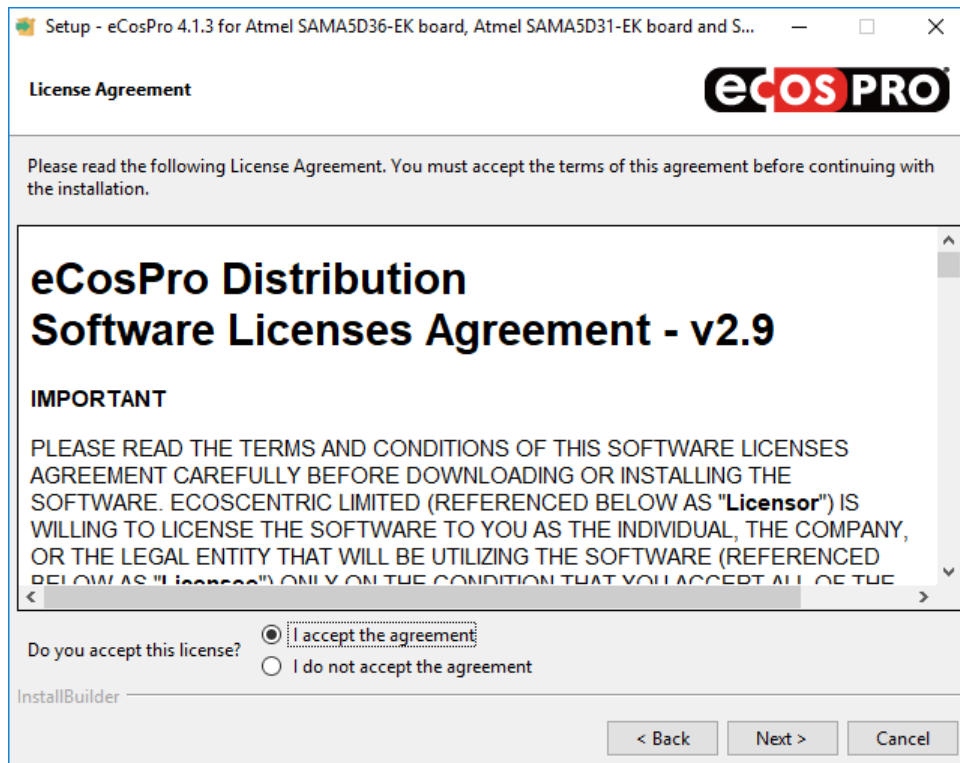
[Figure 4.1, “eCosPro Installer Introduction Screen”](#) illustrates the first window, the introduction window, of the eCosPro GUI install process.

Figure 4.1. eCosPro Installer Introduction Screen



License Agreement

The software provided in the eCosPro Developer's Kit falls under a number of different licenses. The dialog box illustrated in [Figure 4.2, “License Agreement Screen”](#) allows you to read these licenses, also available online at <http://www.ecoscentric.com/licensing/ecospro-distribution-licenses.shtml>. The installer will not allow you to continue with the installation until you agree to adhere and abide by all of the terms and conditions of all of the licenses. If you agree, select the option marked “I accept the agreement” and press “Next”. You will then proceed to the screen described in [the section called “Select Components”](#).

Figure 4.2. License Agreement Screen

If you do not agree, select the option marked "I do not accept the agreement" and select "Next". A pop-up will confirm you wish to exit the installation.



Note

By selecting "Next" you are entering into binding legal agreements between yourself and the licensors of the software being provided to you. Please ensure you are able to comply with the terms and conditions of the licenses before accepting them and understand the penalties of failing to adhere to the licenses. A set of guidelines to follow when releasing products that incorporate software from an eCosPro release may be found at <http://www.ecoscentric.com/licensing/license-compliance-guide.shtml>

Select Components

The eCosPro Developer's Kit is made up primarily of four different components, each with its own installer:

1. eCosPro Release

This is also known as the *primary* installer as it allows the automated installation of the remaining components. When optional components are selected in this installer, the corresponding installers are also executed.

The default installation consists of all eCos and eCosPro sources and documentation, and components 2, 3 and 4 below.

2. eCosPro Host Tools

The default installation consists of all host binaries and documentation.

The eCosPro Developer's Kit for Windows is accompanied by an eCosCentric distribution of [MSYS2](#).

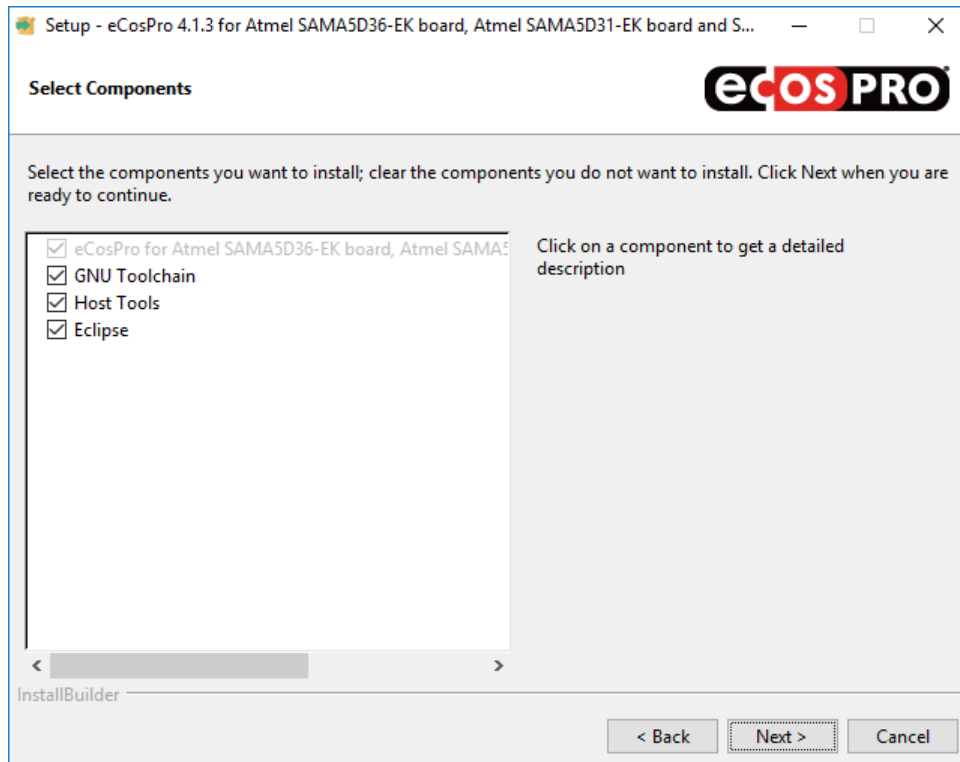
3. *eCosPro GNU Toolchain*

The default installation consists of all host binaries and documentation.

4. *eCosPro Eclipse CDT Plugin*

The default installation consists of Eclipse CDT, the eCosPro CDT Plugin, and documentation.

Figure 4.3. Select Components



The component selection frame allows you to determine which components or items, along with their default sub-component selections, are to be installed. Naturally, the default sub-components differ between installers. For example:

- The Host and GNU Tools installers have the source code as an optional item, not selected by default, with the binaries as a compulsory item.
- The Windows Host Tools installer will install eCosCentric's MSYS2 distribution by default, if not already installed.
- The Eclipse installer has the eCosPro Eclipse/CDT plugin as the compulsory item, with Eclipse as the optional item but selected by default to allow you to install the eCosPro Eclipse/CDT plugin into a third-party version of Eclipse.
- Finally, the eCosPro release installer (also known as the primary installer) has the eCosPro release as the compulsory item, and lists all the former components as optional items, selected by default for installation. If a component is already installed, or is unavailable, it will be deselected and made inactive.

Normally you would leave all components selected as illustrated in [Figure 4.3, “Select Components”](#) and select “Next”.



Warning

If you de-select a component, not all parts of the eCosPro developer's kit may function correctly. In this case you are advised to create your own development profile or environment, selecting your own eCosPro host tools, GNU Tools

or Eclipse as you require. Please read the section on [Profiles](#) in the [eCosPro User's Guide](#) for further information on eCospro Profiles.

eCosPro component base directory

By default, each component is installed into a separate subdirectory within a main eCosPro installation directory, also known as the base directory. This location may be changed in the frame illustrated in [Figure 4.4, “eCosPro component base directory screen”](#). The default location of this main installation sub-directory is as follows:

Windows

The directory eCosPro located in the root directory of the system drive. For example: C:\eCosPro

Linux (root user)

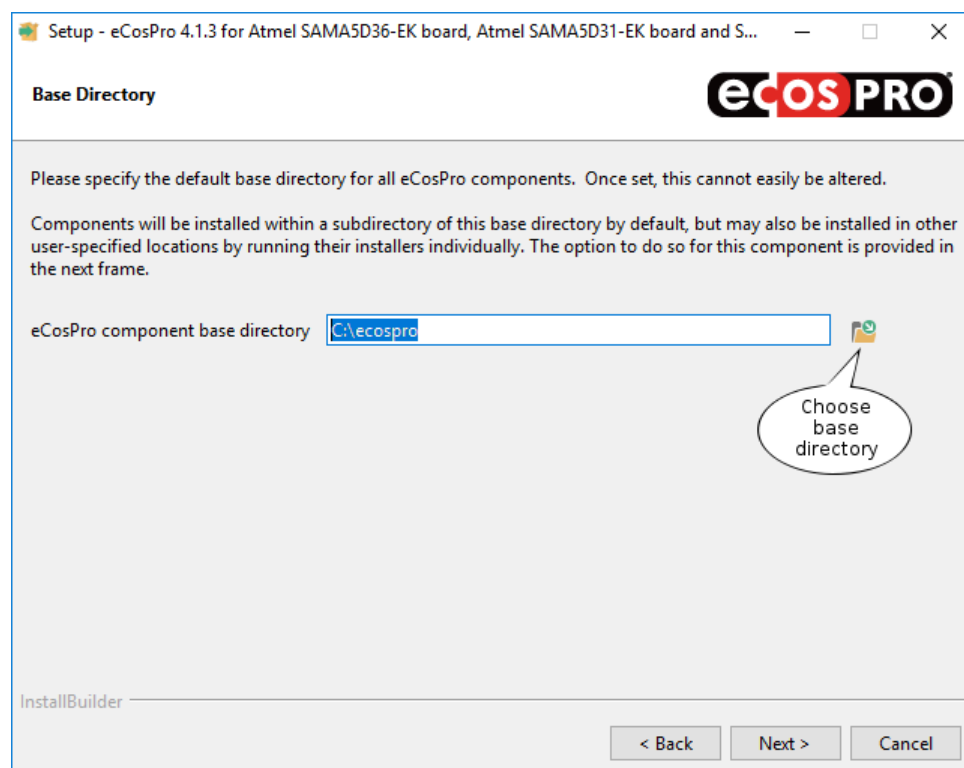
The directory /opt/ecospro.

Linux (Regular user)

The directory \$HOME/ecospro. For example /home/alexs/ecospro.

For example, eCosPro 4.1.3 will be installed into C:\eCosPro\ecos-4.1.3 on Windows and \$HOME/ecospro/ecos-4.1.3 as a regular Linux user.

Figure 4.4. eCosPro component base directory screen



This frame, illustrated in [Figure 4.4, “eCosPro component base directory screen”](#), allows you to select the base directory into which eCosPro components are to be installed by default. Once set, this is used as the parent directory for all subsequent automated eCosPro installations by the primary installer. You will not be shown this frame again.

If you wish to choose a different location for the base directory, select the folder icon called out in [Figure 4.4, “eCosPro component base directory screen”](#) to create or browse to the base directory, or simply enter the path to the base directory in the field provided.

Once you have selected or confirmed the base directory, press “Next ” to select the installation directory for the current component.



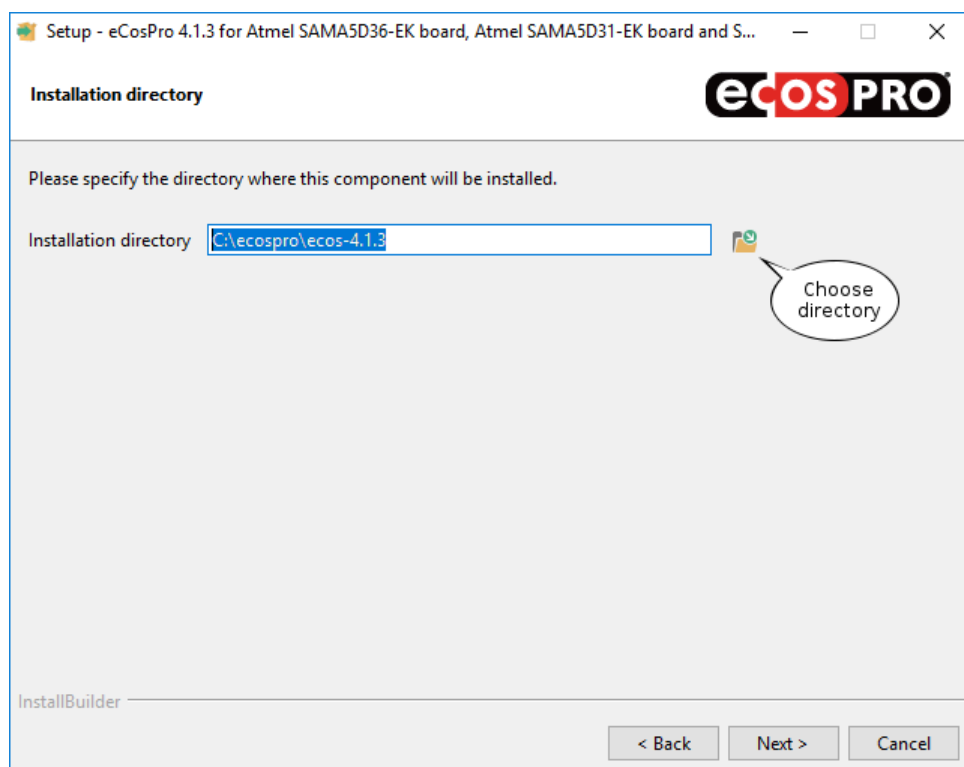
Warning

Do not select an alternative location that contains spaces within any part of the path or the folder name. Spaces cause issues with the GNU Tools, in particular GNU make which uses spaces as separators and is used to build eCosPro and its applications.

Installation Location

The next step of the installation process is to select where you wish to install the eCosPro component, as illustrated in [Figure 4.5, “Installation Location Screen”](#).

Figure 4.5. Installation Location Screen



If you wish to install to a different location, select the folder icon called out in [Figure 4.5, “Installation Location Screen”](#) to create or browse to folder into which the component is to be installed, or simply enter the path to the installation directory in the field provided.

Once you have selected or confirmed the installation folder, press “Next ”.



Warning

Do not select an alternative location that contains spaces within any part of the path or the folder name. Spaces cause issues with the GNU Tools, in particular GNU make which uses spaces as separators and is used to build eCosPro and its applications.

Connection Information

To continue the installation you must have internet access available as well as the username and password used to access the eCosPro developer's kit portal at <https://www.ecoscentric.com/cgi/nph-epdk.cgi>.

Some corporations only permit access to the internet through proxy servers, some of which also require authentication. If you do not require the use of a proxy server, ensure the box illustrated in Figure 4.6, "Connection Information Screen" is not selected and press "Next". If you require the use of a proxy server, check the box illustrated in Figure 4.6, "Connection Information Screen", press "Next", enter the proxy information as illustrated in Figure 4.7, "Proxy Configuration Screen", and press "Next".

Figure 4.6. Connection Information Screen

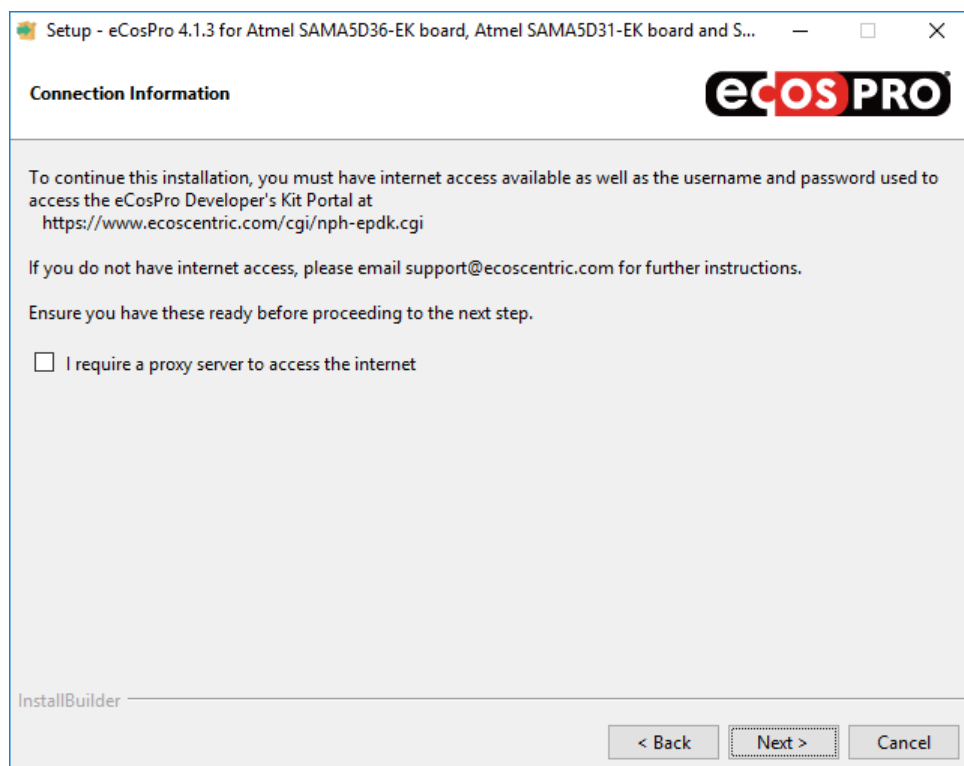


Figure 4.7. Proxy Configuration Screen

Setup - eCosPro 4.1.3 for Atmel SAM5D36-EK board, Atmel SAM5D31-EK board and S...

Proxy Configuration

Proxy Configuration

Proxy Server Port

Proxy Username

Proxy Password

InstallBuilder

< Back Next > Cancel

Enable eCosPro applications

Provide the username and password used to access the eCosPro developer's kit portal, illustrated in [Figure 4.8, "Connection Information Screen"](#).

Figure 4.8. Connection Information Screen

Setup - eCosPro 4.1.3 for Atmel SAM5D36-EK board, Atmel SAM5D31-EK board and S...

Enable eCosPro applications **ecos PRO**

Please specify your eCosPro Developer's Kit Portal username and password to install this component onto your computer.

Username

Password

Retype password

InstallBuilder

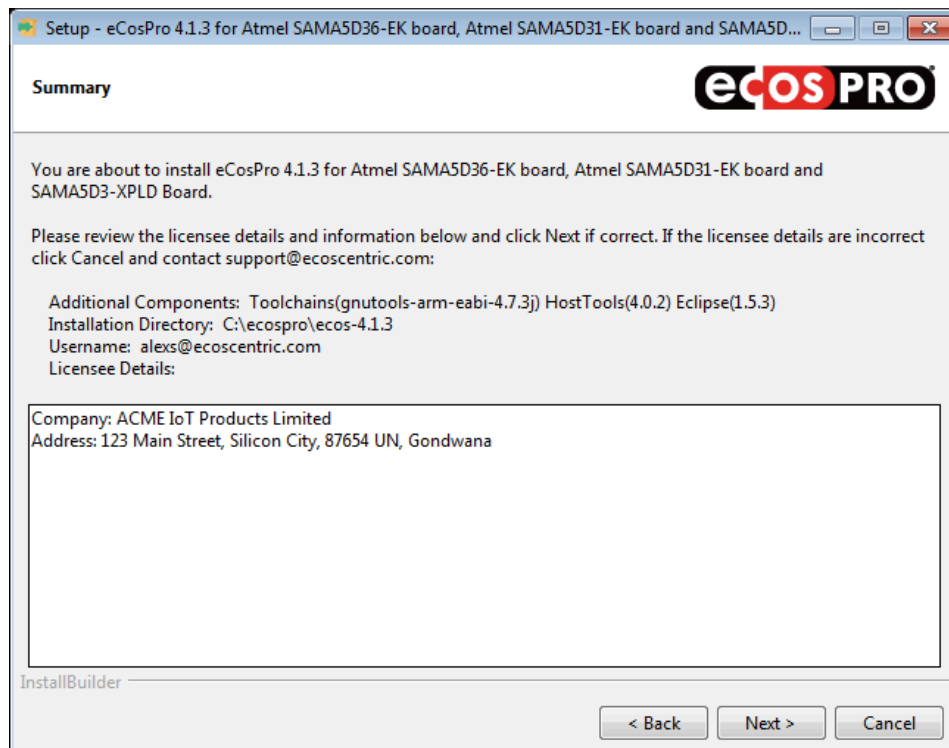
< Back Next > Cancel

When complete, press "Next" for the installer to fetch the licenses applicable to you and to proceed to the next frame. If you are not licensed for an eCosPro component selected for installation, the installer will display an error message and exit.

Summary

The summary page displays the components you have selected for installation, the installation location, as well as the licensee information. This includes the name and address of your company and any other details relevant to your license. Please review the information provided and click "Next" to proceed with the installation.

Figure 4.9. Summary Screen

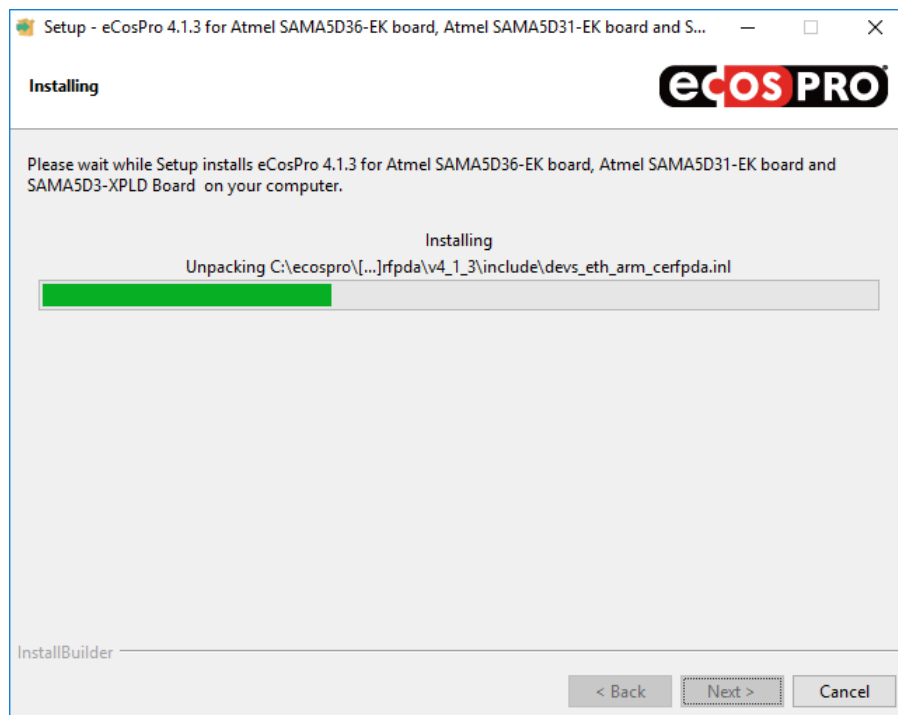


If you do not satisfy the constraints, click on the **Cancel** button followed by the **YES** button of the following pop-up window in order to cancel the installation, and contact eCosCentric.

Installing

The eCosPro installer will commence with the installation of the components selected as illustrated in [Figure 4.10, “Component Installation Screen”](#).

Figure 4.10. Component Installation Screen

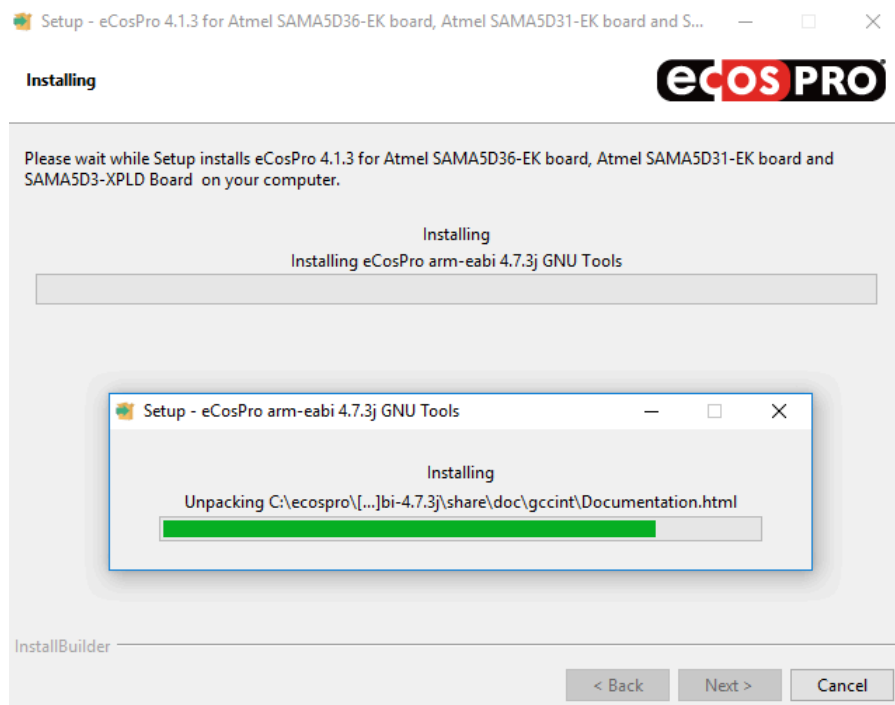


The primary and Eclipse installers invoke various processes and other installers. As a result, various pop-up windows executing commands and providing the status and progress of the installation will also appear as illustrated in [Figure 4.11, “Multiple Installation Screens”](#)

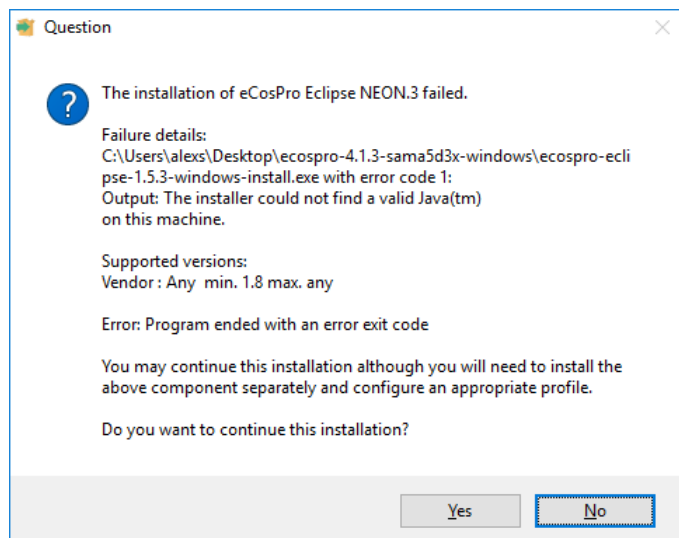


Warning

Do not close or interact with these pop-up windows. They will close when the command completes or the external component installer finishes.

Figure 4.11. Multiple Installation Screens

If an error occurs, such as the error illustrated in [Figure 4.12, “Missing Java Error Dialog”](#), you will be prompted whether you wish to continue the installation, ignoring the error or failure, or whether you wish to cancel the installation. If you cancel the installation, components successfully installed by the primary installer will not be uninstalled. Only partial installations will be removed.

Figure 4.12. Missing Java Error Dialog

While every attempt to avoid the use of shared libraries on Linux has been made through the static linking of libraries, the advance of Linux distributions has resulted in the change of format and location of shared files (for example, `wxGTK 2.8.18`, used by the eCos GUI Configuration tool, is the most commonly affected through its use of common icons). In the `wxGTK` example, the native shared library `libpng12.so` is used to prevent such problems arising. The Host Tools installer therefore runs basic checks to determine missing shared libraries and provide a warning dialog if any are detected. If run individually, the Host Tools installer

will provide the user the opportunity to install the dependency and re-test. Otherwise it will continue installation and warn the user towards the end of the installation of the missing shared library. Missing shared libraries must be installed for the tools to run: please use your native package manager to determine which package provides these shared libraries and install them.

Installation complete

When the installation has completed, a frame such as the one illustrated in [Figure 4.13, “Setup Complete Screen”](#) is shown. At this point, if there are any documented notes or issues specific to this release, they will be contained in a `README` file which you can optionally display by selecting the checkbox, before selecting “Finish”. This file is also located at the root installation directory.

The installer will terminate when the `README` window is closed. If the `README` is not selected, it will terminate immediately.



Important

The documentation index includes links to the documentation of the target platforms for which the eCosPro release was made. This documentation will describe how to set up your embedded hardware for eCosPro development and, if applicable, how to install RedBoot, GDB Stubs and how to debug your application using JTAG. *Please ensure you read through this target platform documentation thoroughly.*

Figure 4.13. Setup Complete Screen



Installing the Host Tools and GNU source code

While eCos and eCosPro releases are provided in source code format, the source code of the eCosPro Host Tools and the GNU Toolchains, can also be installed. To install these you must run each of the eCosPro Host Tools and the GNU Toolchain installers separately from the primary eCosPro installer, ideally prior to running the primary eCosPro installer. The source code will be installed in the `src` subdirectory of each component. For example, on Linux hosts:

- `/opt/ecospro/gnutools-arm-eabi-4.7.3j/src` for the GNU Toolchain source code
- `/opt/ecospro/ecoshosttools-4.0.2/src` for the eCosPro host tools

On Windows hosts:

- `C:\eCosPro\gnutools-arm-eabi-4.7.3j\src` for the GNU Toolchain source code
- `C:\eCosPro\ecoshosttools-4.0.2\src` for the eCosPro host tools

The source code to the Eclipse IDE is not provided.



Notes

1. You do not need to install the source code for either the eCosPro Host Tools or the GNU Toolchains in order to develop and build eCosPro and eCosPro applications. They are only needed if you wish to re-build the host executables for the eCosPro Host Tools or GNU Toolchains. They may also be installed at a later stage by re-running the individual installer for the relevant component (see [Chapter 9, Reinstalling Components](#)).
2. The eCosPro primary installer will not attempt to install a component if it has already been installed. It will not install the source code for the eCosPro Host Tools or the GNU Toolchains.



Important

The standard eCosPro support contracts provided by eCosCentric do not include support for rebuilding the host and GNU tools.

Eclipse Installation

The Eclipse installation requires a Java Runtime Environment (JRE) with a minimum version on 1.8 to be installed on your host system in order to run. This must be installed prior to installing the *eCosPro CDT plugin for Eclipse*. The Eclipse installer will attempt to locate a JRE on the host system during installation. If it fails to find a suitable candidate, it terminate with an error as illustrated in [Figure 4.12, “Missing Java Error Dialog”](#).

By default, the standard Eclipse CDT installation for your host is installed by the installer, and the *eCosPro CDT plugin for Eclipse* installed within this installation using the Eclipse p2 installer. If you wish to install the *eCosPro CDT plugin for Eclipse* into a third-party or existing release of Eclipse, you must run the eCosPro Eclipse installer separately and deselect the Eclipse component. You will still be prompted for the location where Eclipse is to be installed - this is for the location of the accompanying documentation. However, when you progress to the next frame you will also be prompted to provide the path to the `eclipse` executable for the Eclipse installation into which the plugin is to be installed. The *eCosPro CDT plugin for Eclipse* installer will then invoke that installation's p2 installer to install the plugin.



Warning

Eclipse does not attempt to check whether a JRE or a suitable JRE is installed following its installation. Eclipse will simply fail to start if no JRE is found or will terminate with an error if the first JRE found in its path is unsuitable.

Linux Console Installation

In general, we recommend installing eCosPro from within your graphical desktop environment (GNOME or KDE), but installation is also possible from a text-only console or remote shell, as illustrated in [Figure 4.14, “eCosPro Linux Console Installation”](#). The installation steps are very similar to the graphical installation, with the primary installer spawning the installers of dependent components if they are not already installed. To perform a console installation, run the primary installer with the additional parameters `--mode text`. Component installers may also be individually executed if you are upgrading specific components of the eCosPro Developer's Kit.

Figure 4.14. eCosPro Linux Console Installation

```
alex@avatar /tmp $ ./ecospro-4.1.3-sama5d3x-linux-x64-install.run --mode text
-----
Welcome to the eCosPro 4.1.3 for Atmel SAMA5D36-EK board, Atmel SAMA5D31-EK
board and SAMA5D3-XPLD Board Setup Wizard.
-----

Please read the following License Agreement. You must accept the terms of this
agreement before continuing with the installation.

Press [Enter] to continue:
```



Note

The Console installation method is not available for Windows hosts.

Individual Installation and Build Environment

Advanced eCosPro users may wish to install eCosPro or its components individually. When doing so users must then set their own build environment to configure and build eCosPro and their applications. For example, the `PATH` environment variable must be set to include the `bin` directory of the GNU Toolchain at its installed location (e.g. `/opt/ecospro/gnutools-arm-eabi-4.7.3j/bin` or `C:\eCosPro\gnutools-arm-eabi-4.7.3j\bin`) as well as the `bin` directory of the eCos host tools at their installed location (e.g. `/opt/ecospro/ecoshosttools-4.0.2/bin` or `C:\eCosPro\ecoshosttools-4.0.2\bin`). They must also set the `ECOS_REPOSITORY` environment variable to point to the `packages` subdirectory of the eCosPro installation (e.g. `/opt/ecospro/ecos-4.1.3/packages` or `C:\eCosPro\ecos-4.1.3\packages`). For further information please see [Chapter 6, Environment Variables](#).

Chapter 5. After installation

Menu Items

Upon the successful installation of the eCosPro Developer's Kit a new *eCosPro* menu group should appear in your desktop menu under Windows. On Linux, the new menu items will vary according to your distribution and version. On some distributions/versions, they will appear within a separate eCos menu group, while on others they will appear under the *Development* or *Programming* menu groups. The exact menu layout will vary according to your host operating system and distribution. The example menu layout of various operating systems is illustrated in the figures below.

The menu items are:

<i>Configtool</i>	Start up the eCos Configuration Tool. If more than one version of eCosPro is installed, you will be prompted for the profile to use (set consisting of default target, preferred toolchain, host tools and eCos repository), otherwise the sole profile will be use automatically.
<i>Eclipse</i>	Start up the Eclipse Development Environment.
<i>eCosPro & Eclipse Help</i>	This will bring up the Eclipse Documentation Window, which includes links to all recent eCosPro documentation. Unlike the browser interface to the documentation, this provides a searchable interface into the documentation for <i>*all*</i> locally installed documentation. This includes all locally installed eCosPro releases and the documentation of all the host tools across versions installed.
<i>Edit Profiles</i>	This will start the eCos Configuration Tool in <i>Profile Edit</i> mode, allowing you to define new eCosPro profiles (sets consisting of default target, preferred toolchain, host tools and eCos repository).
<i>Shell Environment</i>	<p>Prompt for a profile and open a command line shell environment in a new window where the eCosPro development environment is initialised according to the selected profile. If only one profile exists, that will be automatically selected.</p> <p>On Windows, this will open the chosen shell window with the preferred toolchain and host tools placed in the search <code>PATH</code> with the <code>ECOS_REPOSITORY</code> environment variable set accordingly.</p> <p>On Linux, this is achieved through a shell script that opens the user's default shell in one of the following terminal windows, in order of preference: x-terminal-emulator, gnome-terminal, konsole, mate-terminal, rxvt, xterm.</p>
<i>Release Documentation</i>	This will open the master documentation index for the specified release in your default browser (or default handler for .html files). The documentation is provided primarily in HTML format so may be read by any modern web browser, but in most cases is also available in PDF format, so may also be read using a PDF viewer such as AcroRead, Acrobat, Document Viewer, etc. This same documentation is also accessible through Eclipse Help via the <i>eCosPro & Eclipse Help</i> option above, but has been made available through this link for developers who prefer to read in their preferred browser or did not install the eCosPro Eclipse IDE.
<i>Uninstall eCosPro (Linux only)</i>	This option allows you to remove eCosPro components from your system. See Chapter 10, Uninstalling .

Figure 5.1. eCosPro Menu Group on Windows 10

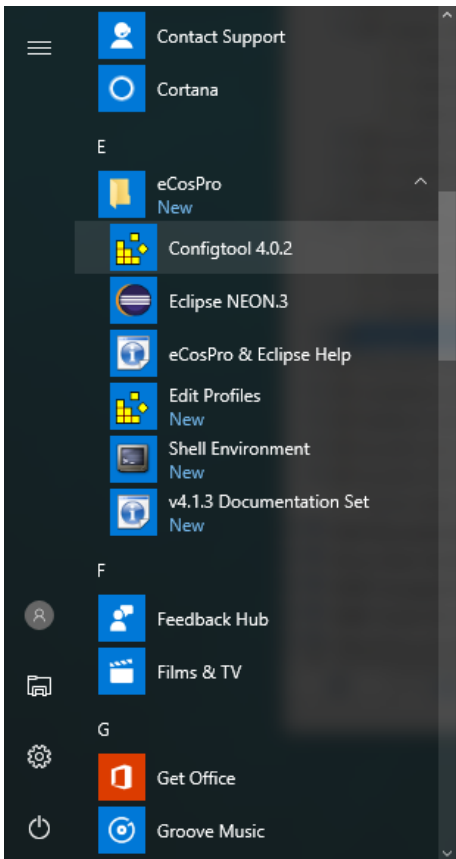
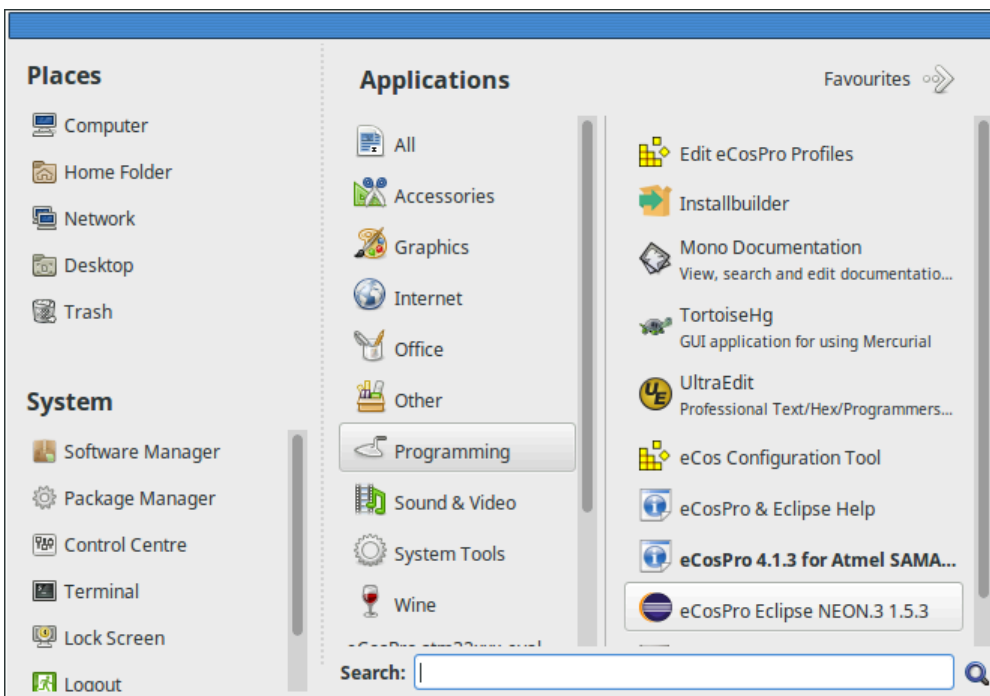


Figure 5.2. eCosPro Menu Group on Mint 18



On Windows, if MSYS2 is installed, you may have the following additional menu items. These will open terminal windows in the selected MinGW environment.

Figure 5.3. Windows MSYS2 Menu



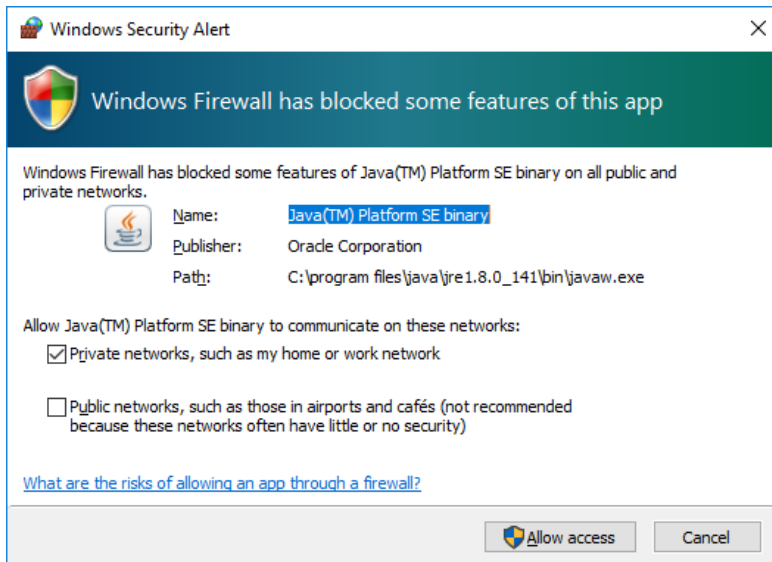
Note

1. The MSYS2 terminal windows by default will not be configured for CLI development of eCosPro libraries or applications.
2. To use a MSYS2 terminal window for this development, select the *MSYS Terminal* radio button within the *Viewers/Shell* tab of the *Settings* dialog (*View* → *Settings*) within the Configuration Tool, and select *Tools* → *Shell*.

Windows 10 Security Alert

When starting the *Eclipse & eCosPro Help* from either the menu or the *eCos Configuration Tool*, you may get a Windows Firewall Alert as illustrated in [Figure 5.4, “Windows 10 Security Alert Screen”](#), or something similar from your anti-virus or internet security software. This is normal as the Eclipse help system runs a mini web-server on the development host that serves the >Eclipse & eCosPro help pages which are then viewable through a normal browser. You may block or allow access as desired, as long as access to localhost or 127.0.0.1 is permitted so documentation may be access from the same development host.

Figure 5.4. Windows 10 Security Alert Screen



Windows Defender and other Anti-Virus applications

Windows Defender and other Anti-Virus applications are known to more than double the build time of eCosPro libraries, tests and applications on Windows. This is because some Anti-Virus applications repeatedly scan the eCosPro Host and GNU Tools executables on each invocation, or whenever the eCosPro source files are read or object/image files are written.

The build time may therefore be reduced by excluding the eCosPro Developer's Kit components from repeated and unnecessary scanning during the build process by your Anti-Virus and Anti-Malware software. Please refer to the help sections and documentation of your Anti-Virus and Anti-Malware software for instructions on how this may be achieved.

For convenience on hosts where Windows Defender is active, eCosPro installers released in 2021 onwards add the components they install to the *Exclusion List* of Windows Defender.

Chapter 6. Environment Variables

When configuring and building eCos and eCos applications from a shell on Linux or a DOS command line on Windows without profile support, or from a shell or command line that was not invoked from the menu items created by an eCosPro installation, you must ensure that the following two environment variables are set:

PATH

The PATH environment variable must include the bin directory of the GNU Toolchain at its installed location (e.g. /opt/ecospro/gnutools-arm-eabi-4.7.3j/bin on Linux or C:\eCosPro\gnutools-arm-eabi-4.7.3j\bin on Windows) as well as the bin directory of the eCos host tools at their installed location (e.g. /opt/ecospro/ecoshosttools-4.0.2/bin on Linux or C:\eCosPro\ecoshosttools\bin on Windows).

ECOS_REPOSITORY

The ECOS_REPOSITORY environment variable must point to the packages subdirectory of the eCosPro installation (e.g. /opt/ecospro/ecos-4.1.3/packages on Linux or C:\eCosPro\ecos-4.1.3\packages on Windows).

More advanced users will note that ECOS_REPOSITORY may in fact point to multiple eCos component repositories by adding each repository to the ECOS_REPOSITORY environment variable separated by the PATH separator of the host O/S. (i.e. a colon on Linux and a semi-colon on Windows).

For example, within a bash shell on Linux:

Figure 6.1. Linux Bash Environment variables

```
test@ubuntu:~$ export PATH=/opt/ecospro/gnutools-arm-eabi-4.7.3j/bin:/opt/ecospro/ecoshosttools-4.0.2/bin:${PATH}
test@ubuntu:~$ export ECOS_REPOSITORY=/opt/ecospro/ecos-4.1.3/packages
```

and within a Windows/DOS Command Line:

Figure 6.2. Windows Command Line Environment Variables

```
C:\> SET PATH=C:\eCosPro\gnutools-arm-eabi-4.7.3j\bin;C:\eCosPro\ecoshosttools-4.0.2\bin;%PATH%
C:\> SET ECOS_REPOSITORY=C:\eCosPro\ecos-4.1.3\packages
```



Note

These two environment variables are effectively set within Eclipse and the eCos Configuration Tool through the use of eCosPro Profiles. An eCosPro Profile is essentially an eCosPro Installation which matches a version of eCosPro to a version of the GNUTools, Host Tools and Eclipse. The environment variables are also explicitly set according to the corresponding eCosPro Profile/Installation when the Shell/Command Line menu items are invoked. For additional details please read the section [Environment Variables](#) in the [eCosPro User Guide](#).

Chapter 7. Target Setup



Tip

Please refer to the "Target Platform Documentation" section of the documentation set for specific details of how to setup your target platform for eCosPro development. This includes instructions on how to install either RedBoot or GDB stubs, or setup hardware based debugging.

While eCosPro supports a variety of targets, communication with most targets happens in one of four ways. These are described in general below. Any details or variations from these descriptions will be found in the "Target Platform Documentation" section for your specific platform.

For details on how to develop eCos applications using the Eclipse IDE rather than command line tools, and accessing the targets through each method below, please read the "Debugging eCos applications" chapter of the "eCosPro CDT plugin user's guide". This guide is accessible via "eCosPro & Eclipse Help" Start menu entry, or directly from within the Eclipse IDE's help system.

Connecting Via Serial Line

Most targets will require RedBoot or GDB Stubs to be installed as part of the setup procedure described in the platform documentation for the target. These normally wait for GDB to connect at 38400 baud, using 8 data bit, no parity bit and 1 stop-bit and no hardware flow control. Check the documentation for your target to ensure it uses this speed. If not, adjust the following instructions accordingly.

The following instructions depend on your having selected the appropriate serial port on the host. That is, the serial port which connects to the target's (primary) serial port. On Linux this could be `/dev/ttyS0` or `/dev/ttyUSB0`, while the same port on Windows would be named COM1. Substitute the proper serial port name in the below.

Connect to the target by issuing the following commands in GDB console mode:

```
(gdb) set serial baud 38400
(gdb) target remote /dev/ttyS0
```

The program may then be loaded and executed, and optionally breakpoints set to make the program halt at specific points to allow debugging. For example:

```
(gdb) load
Loading section [...]
[...]
(gdb) break main
Breakpoint 1 at 0x12345678: file /work/main.c, line 20
(gdb) break file.c:123
Breakpoint 1 at 0x12346000: file /work/file.c, line 123
(gdb) continue
Continuing.
```

Connecting Via Ethernet

Some targets allow GDB to connect via Ethernet - if so, it will be mentioned in the document describing the target. Substitute the target's assigned IP address or hostname for `<hostname>` in the following. Depending on how RedBoot has been configured, it will either have this address allocated statically, or will acquire it via BOOTP/DHCP. In both cases RedBoot will report the IP address it is listening on in its startup message printed on the serial port. The `<port>` is the TCP port which RedBoot is listening on, usually 9000. It is also listed in the target document.

Connect to the target by issuing the following command in GDB console mode:


```
(gdb) target remote <hostname>:<port>
```

The program may then be loaded and executed, and optionally breakpoints set to make the program halt at specific points to allow debugging. For example:

```
(gdb) load
Loading section [...]
[...]
(gdb) break main
Breakpoint 1 at 0x12345678: file /work/main.c, line 20
(gdb) break file.c:123
Breakpoint 1 at 0x12346000: file /work/file.c, line 123
(gdb) continue
Continuing.
```

Connecting Via JTAG

JTAG can be used to single-step and debug loaded RAM applications, or even applications resident in ROM. If JTAG is supported by your target, please refer to the documentation describing the target as you will need to configure your JTAG debugger appropriately. Certain targets may also need to specify a JTAG startup type in the eCos configuration. Again, refer to the target specific documentation.

Many JTAG debuggers provide a GDB server to which you may connect GDB to download, run and debug your application. This is typically done over ethernet so refer to [the section called “Connecting Via Ethernet”](#) for instructions on how to debug over ethernet and replace **<hostname>** with the name or IP address of the JTAG debugger, and **<port>** with the port number typically associated with your JTAG debugger. For example, for the Ronetix PEEDI the port number is normally **2000**, while for the Abatron BDI3000 the port number is normally **2001**.

Debugging of ROM applications is sometimes only possible if using hardware breakpoints, and some hardware may only support a very limited number of hardware breakpoints so they should be used sparingly. Check the target documentation to see if your target falls into this category. If so and you use a GDB front-end such as Eclipse, check it has not set unnecessary extra breakpoints. Some JTAG devices give the option of whether to set hardware or software breakpoints by default. Be sure to configure your device appropriately.

Connecting Via OpenOCD

Some targets allow the use of OpenOCD for debugging and development - if so, it will be mentioned in the document describing the target. For these targets, the `openocd` executable provided with the eCosPro Host Tools must be used along with the `openocd.cfg` configuration file for the target.

One of the enhancements of eCosPro 4.x was the placement of all target-specific configuration files for hardware debuggers, such as `openocd.cfg` or `peedi.cfg`, into the `install/etc` directory of the eCos build tree. These configuration files may also be configuration specific. In addition, with consistent naming, developers are easily able to reference and use the configuration files.

Connect to the target by issuing the following command in GDB console mode:

```
(gdb) target remote | openocd -f /home/test/dev/demo_install/etc/openocd.cfg -c "gdb_port pipe"
```

The program may then be loaded and executed, and optionally breakpoints set to make the program halt at specific points to allow debugging. For example:

```
(gdb) load
Loading section [...]
[...]
(gdb) break main
Breakpoint 1 at 0x12345678: file /work/main.c, line 20
(gdb) break file.c:123
Breakpoint 1 at 0x12346000: file /work/file.c, line 123
```

```
(gdb) continue  
Continuing.
```



Warning

Do not use publically available or third-party openocd or gdb executables. eCosCentric have made patches to these applications to either fix or add functionality to allow them to be used with eCosPro development.

Using A Synthetic Target

Synthetic targets are special in that the built tests and applications actually run as native applications on the host. This means that there is no target to connect to. The test or application can be run directly from the GDB console using:

```
(gdb) run
```

There is therefore no need to connect to the target or download the application, so you should ignore GDB “target” and “load” commands in any instructions found in other places in the documentation.

At present, only Linux Synthetic Target support is available.

Chapter 8. Upgrading eCosPro and Components

eCosPro and its components may be upgraded individually as required and as updates become available.

Upgrading eCosPro

When upgrading eCosPro, the new version is installed alongside the old version which is not automatically uninstalled. Instead a new eCosPro profile is simply added to your host system allowing you to choose between different versions of eCosPro. This is similar to having multiple installations of eCosPro for different architectures or platforms. On completion of an upgrade you will see an additional menu folder, such as those shown in [Chapter 5, After installation](#), with menu items specific to the upgrade release just as each multiple eCosPro installation is specific to an architecture or platform. To upgrade eCosPro, simply run the **setup.exe** install launcher or **install.sh** script as normal and follow the normal installation instructions provided in [Chapter 3, Installing](#) and [Chapter 4, Installation Walk-through](#). To remove the older version of eCosPro, follow the instructions provided in [Chapter 10, Uninstalling](#).

Upgrading eCosPro Configurations to newer eCosPro releases

As you will see in this section, upgrading eCosPro Configurations to newer eCosPro releases is a manual process that cannot be automated. While there are no hard and fast rules that can be followed, this section provides general advice and information on what steps should be followed and what can be expected when you move an eCosPro configuration between different releases of eCosPro.

For existing eCosPro configuration projects that need to move to a newer version of eCosPro, the most effective method to achieve this is to export the configuration information from the earlier version of eCosPro and import this configuration information into the updated version. This may be achieved using the `Export` and `Import` functions of the graphical Configuration Tool or at the command line using the `ecosconfig` command. For example, from the command line:

Figure 8.1. ecosconfig export and import

```
test@ubuntu:~$ export ECOS_REPOSITORY=/opt/ecospro/ecos-old-version/packages
test@ubuntu:~$ ecosconfig --config=/path/to/old/ecos.ecc export config.ecm
test@ubuntu:~$ export ECOS_REPOSITORY=/opt/ecospro/ecos-new-version/packages
test@ubuntu:~$ touch /path/to/new/ecos.ecc
test@ubuntu:~$ ecosconfig --config=/path/to/new/ecos.ecc import config.ecm
```

If you are using the graphical Configuration Tool, you are advised to:

1. load your eCos configuration under the old eCosPro profile
2. `Export` the configuration settings which will save the eCos configuration to a minimal eCos configuration save file
3. switch to the new eCosPro profile by exiting the graphical Configuration Tool and starting the graphical Configuration Tool again through the Desktop menu appropriate to the newer eCosPro release



Note

Future versions of the graphical Configuration Tool may allow you to switch eCosPro profiles from within the `Tools` submenu without having to restart the Configuration Tool.

4. `Import` the configuration settings from the minimal eCos configuration file created by the previous `Export`

If you have modified the sources within the old eCos repository, you will also need to migrate your changes into the respective updated packages *prior* to attempting to upgrade the eCos configuration. Similarly, if you have added new packages or sources into the old eCos repository, you will need to copy over these additional packages and files, updating the `ecos.db` in the new eCos repository as necessary *prior* to attempting to upgrade the eCos configuration.

The `import` operation for both tools will produce benign warnings where packages have been updated, switching the packages to the newer version. However, where packages or configuration options have been removed or renamed, the import process will fail. In such instances, developers are advised to look for similar options or replacement packages in the newer version and adjust the import file accordingly by editing it with a standard text editor until the `import` operation succeeds. Once the minimal configuration file has been imported into a new eCos configuration, developers need to consider what the implications are, if any, of configurations settings that did not move across cleanly to the new version of eCosPro to their eCosPro application(s) and make further refinements if necessary.

A typical case where configurations settings will be missing between eCosPro releases is where the eCosPro releases are targeted at different hardware architectures. For example, if an existing product uses eCosPro on a PowerPC architecture and a newer version of the product uses the ARM Cortex-M4 architecture, all of the PowerPC architectural and platform configuration information will both be not applicable and likely missing from the eCosPro ARM release. However, generic non-architecture specific configuration points such as TCP/IP packages, scheduler, memory pools, etc. will transfer easily between the two eCosPro releases.



Note

Switching between eCosPro profiles that contain different eCos repositories or versions is effectively the same operation as upgrading or downgrading to a newer or older release of eCosPro respectively. eCos configuration files (with `.ecc` extensions) are therefore not directly transferrable between eCosPro profiles. eCos configurations within one profile must be exported and subsequently imported into other profiles using the operations described above.



Warning

Developers are *strongly* advised not to update eCos configurations by using the previous eCos release's `.ecc` file directly. Doing so could not only result in conflicts and problems especially if there are *any* changed option names, but if either the graphical Configuration Tool or the `ecosconfig` command are allowed to resolve configuration conflicts you would likely end up with an eCos configuration that is beyond practical use. This is due to the strongly possibility they may make a number of inappropriate inferences to resolve new conflicts that are based off configuration settings inferred by the earlier version of eCosPro.

Upgrading eCosPro Host Tools, GNU Tools or Eclipse

When upgrading the eCosPro Host Tools, GNU Tools or Eclipse, the newer versions of these tools will be placed alongside the older version of the tools. Earlier installers for eCosPro Host Tools (those distributed in versions prior to 4.X of the eCosPro Developer's Kits) replaced the older tools with the newer tools.



Note

When updating the tools to the same location, you must make sure you are not running the graphical Configuration Tool configuration tool or any of the other host tools as the update may fail with unexpected results.

Upgrading Eclipse

eCosCentric Eclipse upgrades currently do not replace the older version of Eclipse but install an additional version that are run alongside previous installations. To install the newer version of Eclipse you must run the appropriate installer for your operating

system and ensure you have to hand your user ID and password for the eCosPro Developer's Kit Portal when you downloaded eCosPro. This installer may be run either individually or automatically as part of a new eCosPro installation.

When a new version of Eclipse is installed, the older version of Eclipse will remain and pre-existing Desktop menus and shortcuts created by old installations of eCosPro will be untouched and still refer to the older versions of Eclipse. Only new installations of eCosPro will create new Desktop menus and shortcuts to the new version of Eclipse.

Older version of Eclipse may be uninstalled as documented in [Chapter 10, *Uninstalling*](#).

Chapter 9. Reinstalling Components

eCosPro components may successfully be re-installed if:

1. you wish to install an additional components, such as the sources for the Host or GNU Tools
2. you suspect corruption of a component
3. you wish to move the installation to a new location

If you reinstall, you will be given the option to uninstall the previous release. If you reinstall to a new location without uninstalling, the files within the original installation will be preserved. You are advised to uninstall the component as described in [Chapter 10, *Uninstalling*](#) if you wish to remove these files (or you may remove them by hand following completion of the re-installation).

Re-installation of a primary component (i.e. an eCosPro platform distribution will only re-install the primary component itself. Dependent components used by the primary component, such as the GNU Toolchain, eCosPro Host Tools or the eCosPro Eclipse distribution may only be re-installed by running their installers individually.

Chapter 10. Uninstalling

In order to uninstall eCosPro and its components, each component must be uninstalled individually. This is done by running the uninstaller located in the base of each installation directory, or by using the native application management tool (Windows only). Uninstallation will remove the menu items, documentation and files for the respective component.

The uninstaller only removes unmodified files and directories that were unpacked during the installation process. Any files or directories that have been modified following installation, or added into the install location at any time, will remain in place following the uninstallation. The installer achieves this by tracking all the files it installed and unpacked using a hidden file located in the top-level install directory. If this file is deleted, renamed or corrupted in any way, the uninstallation may fail.



Warning

If you attempt to uninstall any eCosPro component which is still in use by another component the functionality of the dependent eCosPro component may be broken as a result.



Notes

1. On eCosPro distributions prior to version 4.x You could uninstall the eCosPro <target> installation (e.g. eCosPro cobra5329 3.1.15) which would give you the option of uninstalling dependent eCosPro components such as Eclipse and the eCosPro GNU Tools if there are no other eCosPro target installations dependent on these components.
2. If Eclipse is not installed, but the eCosPro CDT Eclipse plugin is installed into a third party Eclipse installation, only the documentation for the eCosPro CDT Eclipse plugin is uninstalled. The plugin can only be uninstalled using Eclipse's native plugin and software management system.

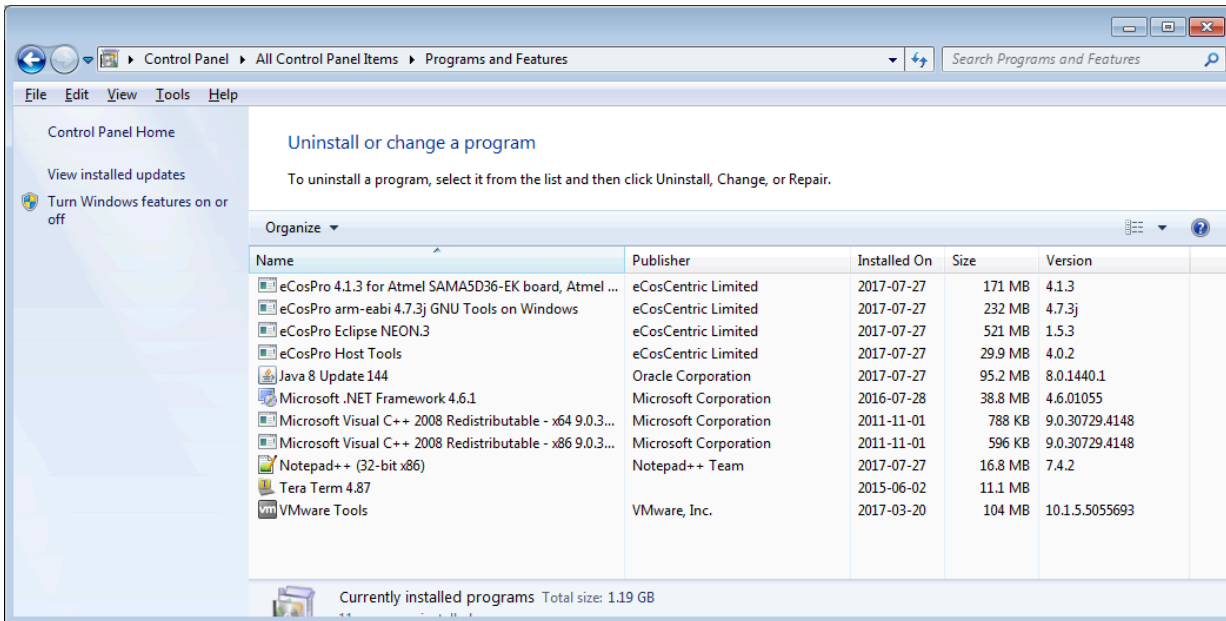
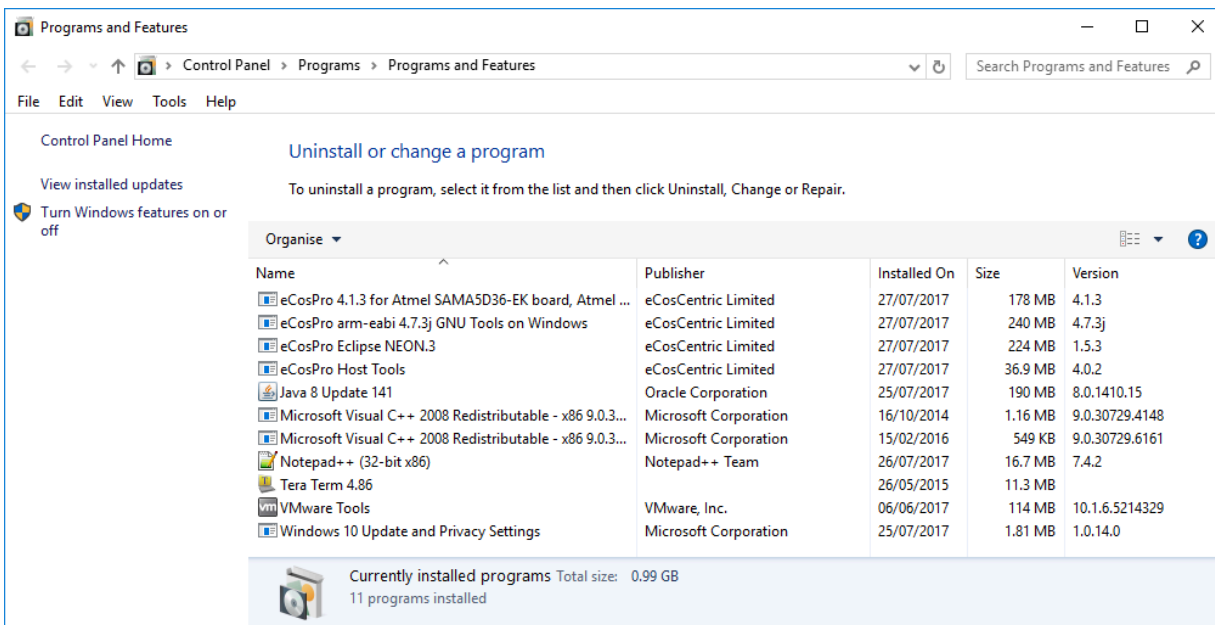
Uninstalling on Windows

All eCosPro components may be uninstalled through the standard [Programs and Features](#) mechanism illustrated in [Figure 10.1, “Programs and Features on Windows 7”](#) or the [Setting](#) mechanism, illustrated in [Figure 10.2, “Programs and Features on Windows 10”](#).



Note

If components are uninstalled along with an eCosPro <target> release, the `Add or Remove Programs` or `Programs and Features` window may still list those components as being installed when the uninstallation has completed. A refresh <F5> of the Window will correctly update the list of installed programs.

Figure 10.1. Programs and Features on Windows 7**Figure 10.2. Programs and Features on Windows 10**

In addition, at the top-level of each directory for each installed component is an executable which, when executed, will uninstall that particular component.

Figure 10.3. Example list of uninstallers for Windows-based OSes

```
C:\eCosPro\ecos-4.1.3\ecospro-4.1.3-sama5d3x-windows-uninstall.exe
C:\eCosPro\eclipse-1.5.3\ecospro-eclipse-1.5.3-windows-uninstall.exe
C:\eCosPro\ecoshosttools-4.0.2\ecoshosttools-4.0.2-windows-uninstall.exe
C:\eCosPro\gntools-arm-eabi-4.7.3j\ecospro-gntools-arm-eabi-4.7.3j-windows-uninstall.exe
```

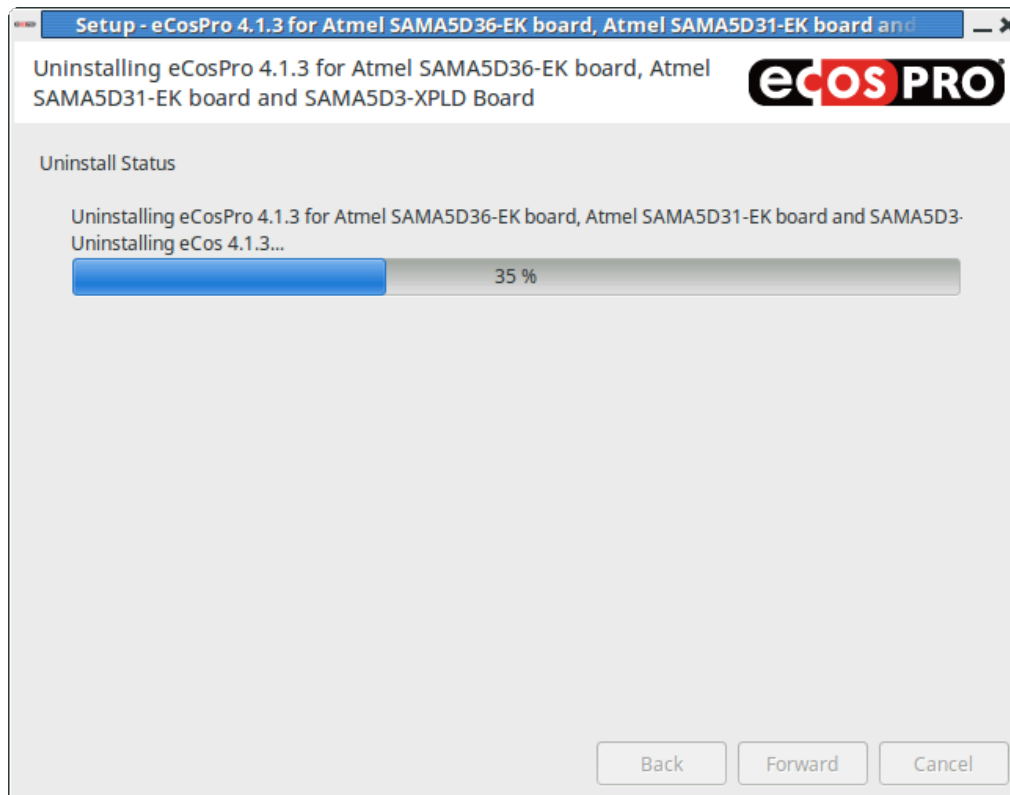

Uninstalling on Linux

Due to the numerous methods employed by different Linux distributions for installing and uninstalling packages, the main method for uninstalling eCosPro is through the menu item. This executes an uninstaller created during installation. Each eCosPro component installed will also have an associated uninstaller located at the top level of each component directory, illustrated in [Figure 10.4, “Linux List of Uninstallers”](#). Each uninstaller will uninstall individual components or releases, with primary installers giving you the option of also uninstalling the associated components (see [Figure 10.5, “Uninstall eCosPro”](#) for an example).

Figure 10.4. Linux List of Uninstallers

```
test@ubuntu:/tmp$ cd /opt/ecospro
test@ubuntu:/opt/ecospro$ ls */*-uninstall
eclipse-1.5.3/ecospro-eclipse-1.5.3-linux-x64-uninstall
ecos-4.1.3/ecospro-4.1.3-sama5d3x-linux-x64-uninstall
ecoshosttools-4.0.2/ecoshosttools-4.0.2-linux-x64-uninstall
gnutools-arm-eabi-4.7.3j/ecospro-gnutools-arm-eabi-4.7.3j-linux-x64-uninstall
test@ubuntu:/opt/ecospro$
```

Figure 10.5. Uninstall eCosPro



Note

The uninstallers will attempt to run in a graphical mode if possible. If you wish to uninstall using console mode, pass the parameters “`--mode text`” to the uninstaller executable.

Chapter 11. Installation Troubleshooting

No eCosPro menu group

Occasionally the eCosPro Menu Group or menu items will not display immediately after installation on Linux Hosts. Normally logging out and back in or restarting the X session resolves this issue. In some instances, a refresh of the menu cache may also be necessary. For example:

Figure 11.1. Ubuntu Gnome Menu Cache Refresh

```
test@ubuntu:~ > sh -c "/usr/share/gnome-menus/update-gnome-menus-cache \  
/usr/share/applications/ > /usr/share/applications/desktop.${LANG}.cache && \  
killall gnome-panel"
```

The eCosPro installer uses [XdgUtils](#) to make every effort to install the menu group and associated menu items. Unfortunately, some Linux distributions do not follow open standards, creating their own unique way of providing menus. Regrettably in such instances the eCosPro Menu group and items will not be automatically created. The user must either create the menu items themselves, referring to the documentation specific to their Linux distribution, or they may simply ignore the lack of menus and start the eCosPro tools by hand, referring to the eCosPro User Manual and eCosPro Eclipse manuals.

Application fail to start

Missing shared libraries (Linux only)

The symptom of this issue is applications failing to start when run from the command line, when selected from the menu, or when run from Eclipse (which may give misleading errors such as “Unable to determine gdb version”).

Some eCosPro Host Tools and Toolchains require the use of shared libraries, which if not installed will result in the failure of the tool to start. While eCosCentric endeavours to minimise dependencies of the binary executables it provides on specific versions of shared libraries, sometimes it is not always possible or practical. If your distribution does not provide the required version of shared library in its standard installation, you will need to specifically install the missing shared library. Although the eCosPro installer does attempt to determine missing dependencies and report these during the installation (for example, in automated or unattended installations), this is not always possible.

As an aid to determine if there are shared libraries required but not installed, the script `test-shlib.sh` exists in the `bin` sub-directory of the eCosPro Host Tools and may be passed the name of an executable to test. It will report if there are any shared libraries required by the executable but are not installed. For example:

```
$ cd /opt/ecospro/ecoshosttools-4.0.2.1/bin/  
$ ./test-shlib.sh configtool  
The following shared libraries are not installed but are required in order to run configtool:  
libpng12.so.0  
$
```

No output is produced if all required shared libraries are installed.

To install `libpng12.so.0`, here are some examples for various distributions:

```
$ sudo zypper install libpng12-0      # openSUSE  
$ sudo apt-get install libpng12-0    # Ubuntu  
$ sudo yum install libpng12          # Fedora
```

Alternatively, simply executing the command from a command line will often give you an error of which shared libraries are missing:

```
$ cd /opt/ecospro/ecoshosttools-4.0.2.1/bin/  
$ ./configtool  
configtool: error while loading shared libraries: libpng12.so.0: cannot open shared object file: \  
    No such file or directory
```

In some cases, your distribution may not provide the version of shared library required for the release you are running. In these instances you may need to add a back-port repository or source the library from an alternate location. For example, Ubuntu 24 ships with the `libncurses6` shared library but the `gdb` provided with version 4.x of the eCosPro GNU Tools uses the `libncurses5` shared library. In order to install `libncurses5` through `apt` the `focal-security` Suite must first be added to the list of software sources.

Should you be unable to resolve a dependency on an older library, please email support@ecoscentric.com.

Eclipse or Help fail to start

Eclipse and the Eclipse help system require at least 1GB of memory in order to run. If your workstation or host environment do not have at least 1GB of available memory, when Eclipse or Help is run java will exit with an error. When run from either the command line or from a menu item, the host environment will report the error, otherwise if Help is run from within the GUI configuration tool, it will fail silently.

The solution is to either add additional memory to the host platform or to exit running applications to free memory.

In rare instances, the version of Eclipse provided alongside eCosPro may also require shared libraries or a specific version of cross-platform widget toolkit (e.g. GTK for your distribution's GUI). In these circumstances it is recommended that you download and install Eclipse from <https://www.eclipse.org/> and install the eCosPro CDT plug-in into this installation.