SDK K531/INS

Installation guide

PMIE100 rev. AA

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1. INTRODUCTION

1.1. PRODUCT BRIEF

Pro-Active K531 is an ISO/IEC 14443 coupler. As an OEM device, it provides an easy-to-use versatile interface between a computer or a microcontroller, and contactless cards or RFID tags.

Sometimes, it appears that embedding specific functions inside the K531 itself can be a great feature for the integrator : it can totally remove the need for an external host microcontroller, or at least allow to use a cheaper one –slower, smaller–, and it helps achieving the fastest transaction speed by dramatically reducing the number of exchanges between reader and host.

The SDK K531/INS is a set of source code and sample projects that make it easy to develop virtually any contactless-related application for the K531.

1.2. ABOUT THIS MANUAL

The SDK K531/INS relies on software supplied by Renesas[1]. This manual gives you the URL of the softwares to be downloaded, and guides during the installation process.

1.3. AUDIENCE

This installation guide is designed for use by Windows system administrators.

1.4. SUPPORT AND UPDATES

Interesting related materials (datasheet, application notes, sample softwares…) are available at Pro-Active's web site : www.pro-active.fr .

Updated versions of this document and others will be posted on this web site as soon as they are made available.

For technical support enquiries, please refer to Pro-Active support page, on the web at address www.pro-active.fr/support .

[1] Renesas is the worldwide leader of the microcontroller market. The company is the result of the fusion between Hitachi and Mitsubishi microcontroller divisions.

2. DOWNLOAD RENESAS TOOLS

2.1. REQUIRED TOOLS

To use this SDK, you need :

- A flashing program, to transfer your firmware inside the K531,
- A compiler chain for the Renesas R8C/25 MCUs (M16C Tiny family).

As a flashing program, we'll use the Renesas FDT (« Flash Development Toolkit ») freeware edition.

As a compiler chain, we'll use Renesas M3T-NC30WA evaluation edition[2].

The M3T-NC30WA compiler chain can be invoked from the command line, but it is more convenient to work with the Renesas HEW IDE (« High-performance Embedded Workshop », formerly « Hitachi Embedded Workshop »).

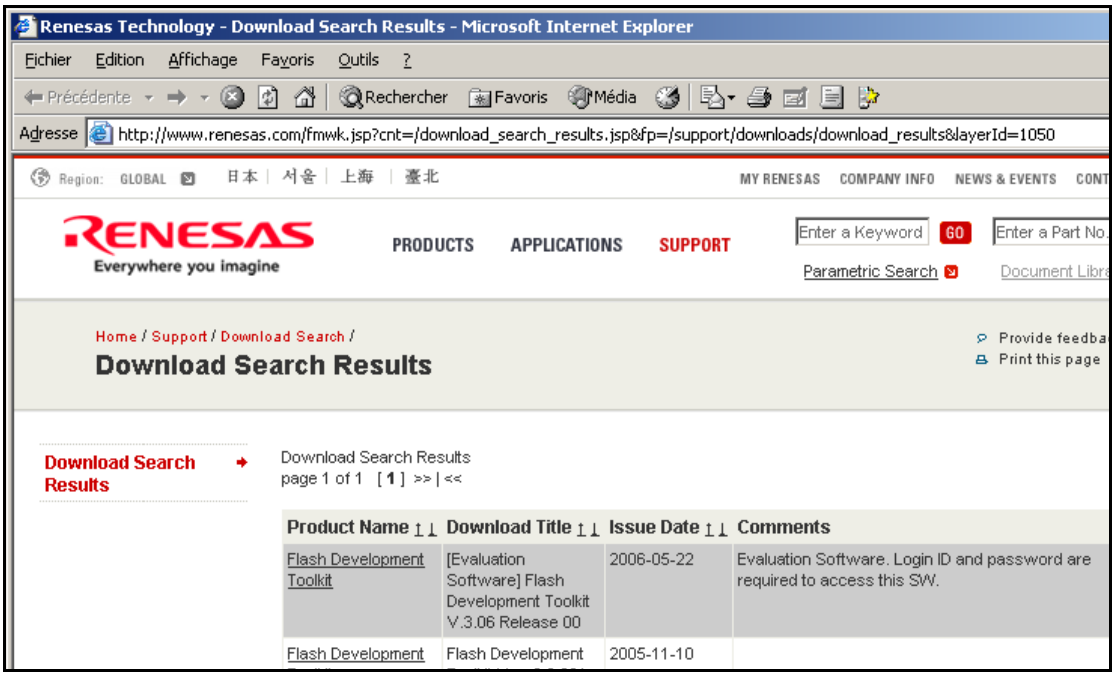
2.2. DOWNLOAD FLASH DEVELOPMENT TOOLKIT

The Renesas FDT software allows flashing the MCU through a PC serial communication port.

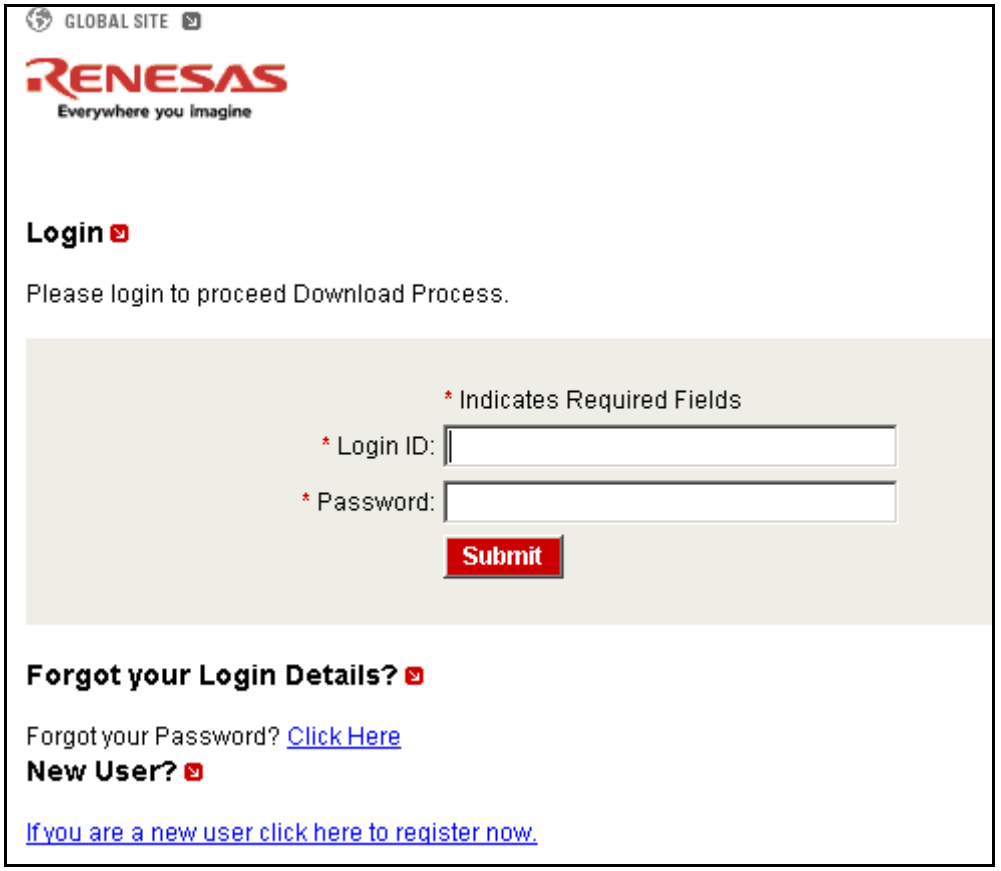
At the date of writing, current version of this software is 3.06.00 . You must use version 3.00 or newer (older versions do no support the R8C/25).

- Go to URL http://www.renesas.com/fdt .
- Click on the **Downloads** link.

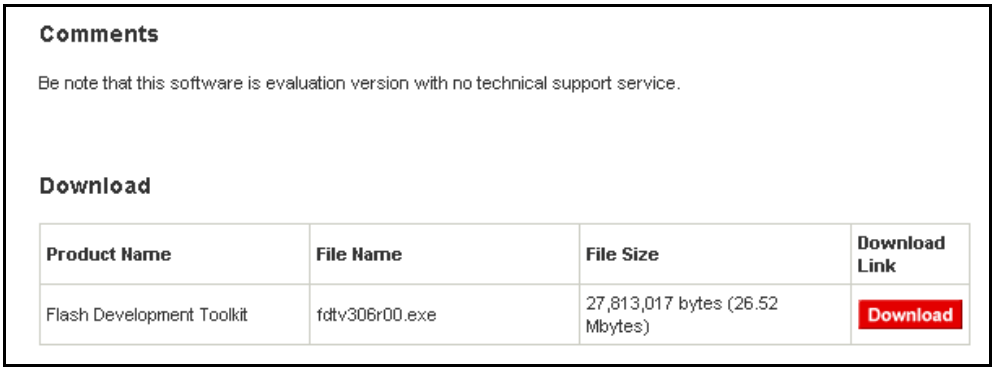
[2] The evaluation edition is limited to 64kB of code. That is enough in our case since the R8C/25 has only 32 or 64kB of flash.



- Select **Flash Development Toolkit** evaluation software, version 3.0 or newer. Click on the link.
- You must login to proceed with download. If you don't have an account yet, click on « If you are a new user click here to register now ». Registration is free and fast (you'll need a valid email address for account activation).



- Read the Disclaimer and Agreement. « Agree » and submit.
- Click on the « Download » button at bottom of next page.



Comments

Be note that this software is evaluation version with no technical support service.

Download

Product Name	File Name	File Size	Download Link
Flash Development Toolkit	fdtv306r00.exe	27,813,017 bytes (26.52 Mbytes)	Download

- Download the installation package onto your hard drive.

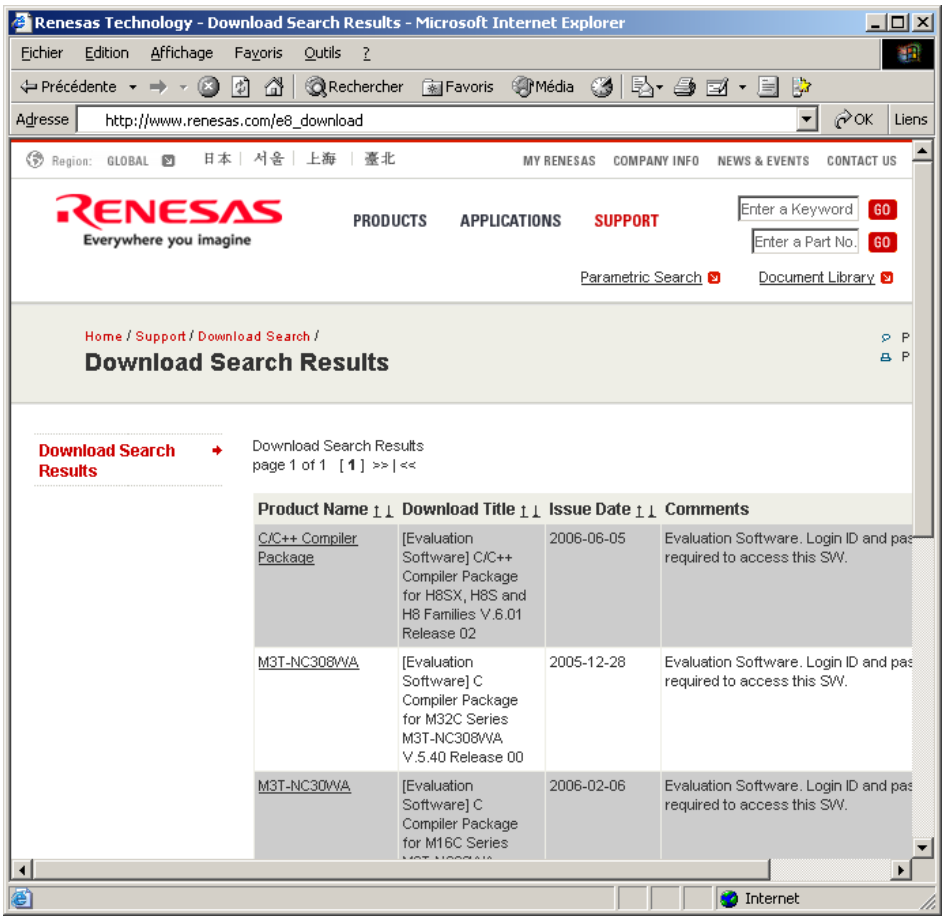
2.3. DOWNLOAD COMPILER AND IDE PACKAGE

The Renesas E8 Emulator Software provides all what we need in a single package : the Renesas M3T-NC30WA compiler chain (evaluation edition) for the M16C family, and the Renesas HEW IDE.

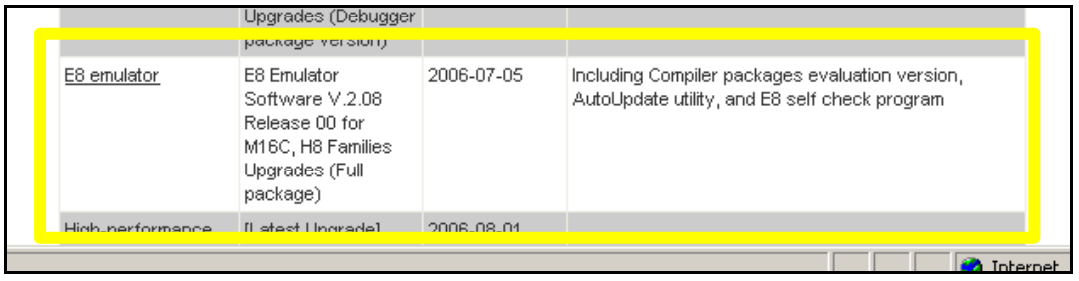
> The E8 Emulator is an hardware device that allows on-chip debugging of Renesas MCUs. The software package comes with a debugger and an emulator that are useless without the E8 Emulator. We'll use only the IDE and compiler chain.

At the date of writing, current version of this package is 2.08.00 . It includes HEW 4.00.03 and M3T-NC30WA 5.40.00.

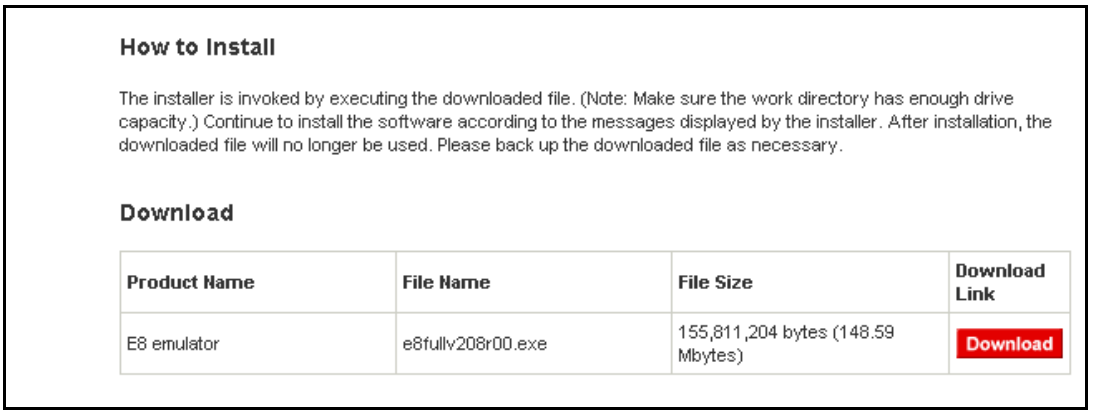
- Go to URL http://www.renesas.com/e8_download



- Select **E8 Emulator Full Package** including Compiler.



- Click on the selected link.
- Read the Disclaimer and Agreement. « Agree » and submit.
- Click on the « Download » button at bottom of next page.



How to Install

The installer is invoked by executing the downloaded file. (Note: Make sure the work directory has enough drive capacity.) Continue to install the software according to the messages displayed by the installer. After installation, the downloaded file will no longer be used. Please back up the downloaded file as necessary.

Download

Product Name	File Name	File Size	Download Link
E8 emulator	e8fullv208r00.exe	155,811,204 bytes (148.59 Mbytes)	Download

- Download the installation package onto your hard drive.

3. INSTALL RENESAS TOOLS

3.1. NOTE

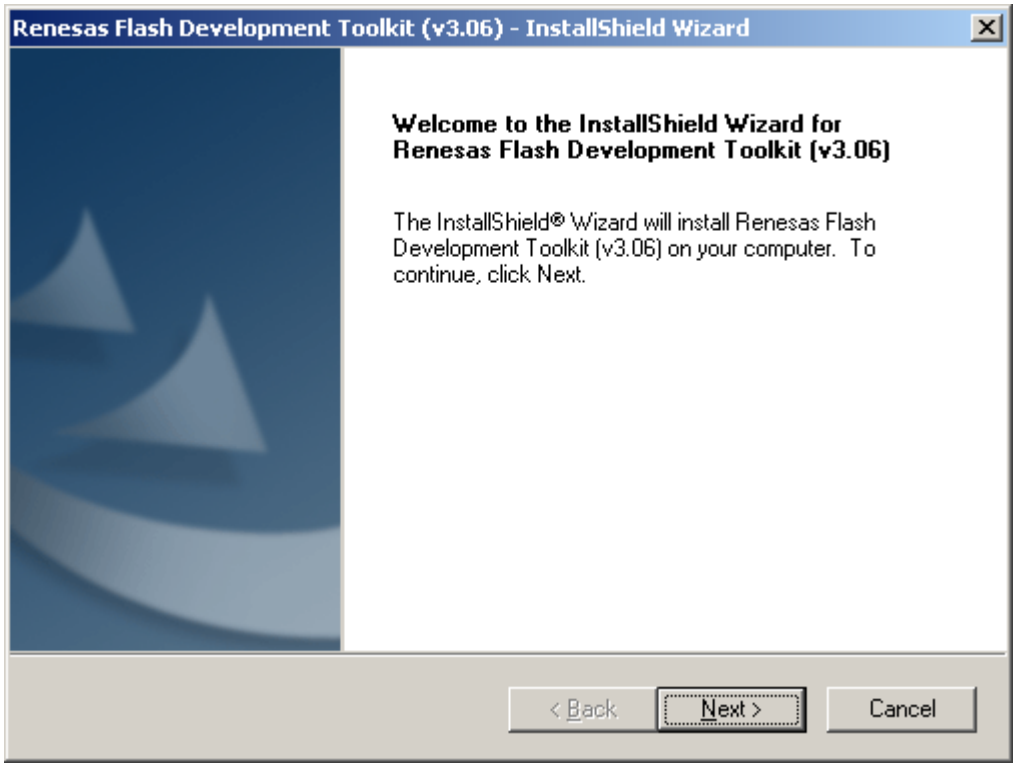
You need administrative privileges to install the tools.

Login as an "Administrator" before proceeding.

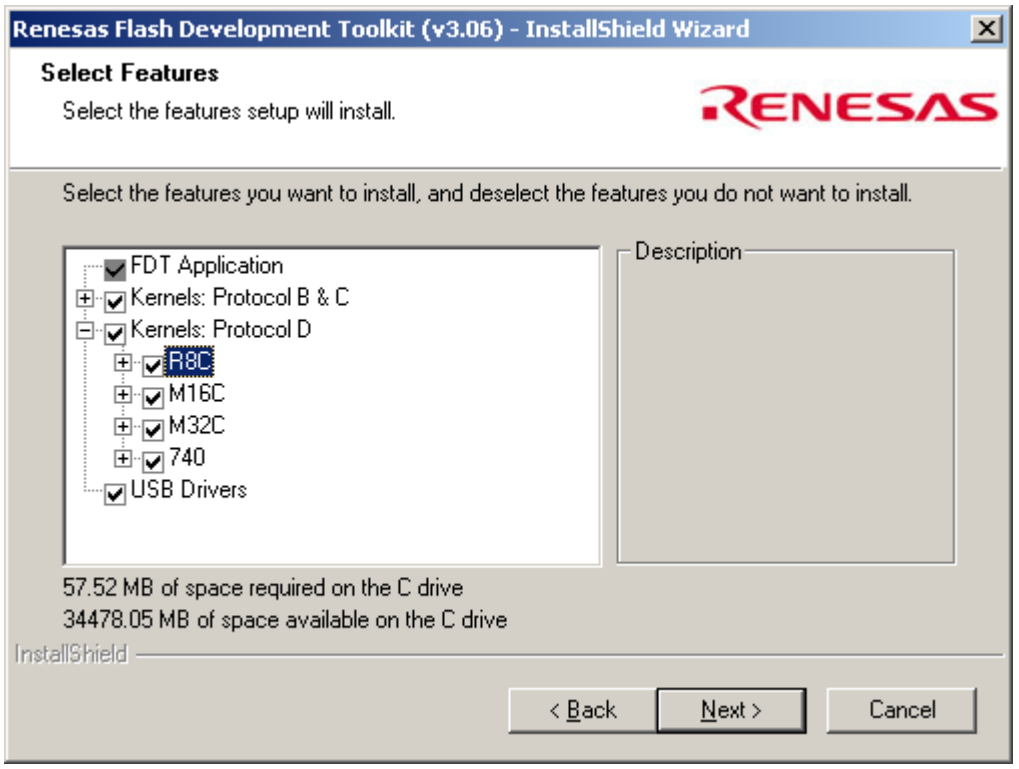
At the end of the installation process, you may have to reboot your computer.

3.2. INSTALL FDT

- Launch the FDT installation program that has been downloaded in previous chapter.



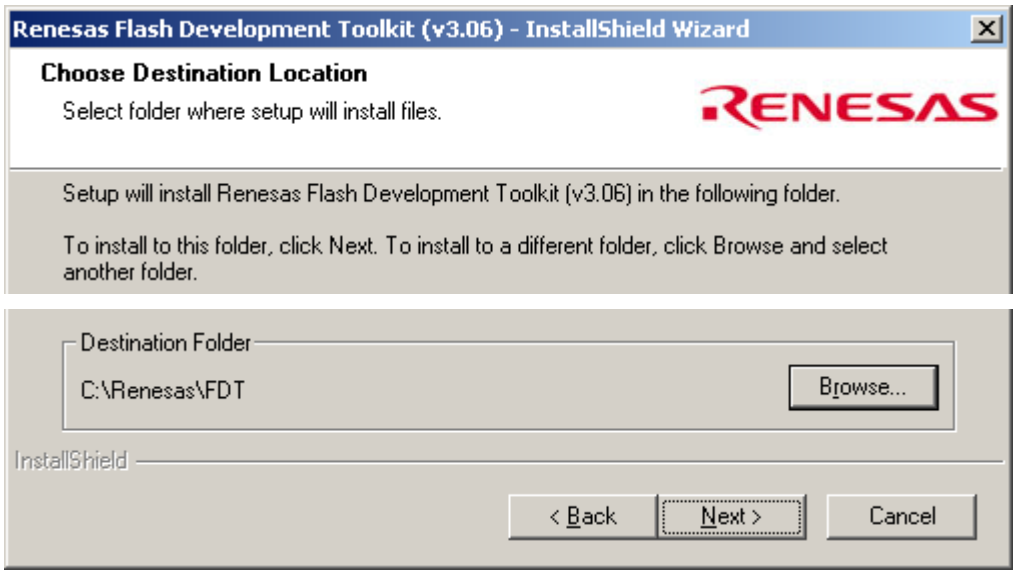
- Next screen : select installation language.
- Next screen : select features to be installed. We'll need at least the « FDT Application » and the « R8C » group in « Kernels : Protocol D ». Other items are optional.



- Next screen : select installation option.
- Next screen : choose destination location. We *strongly* recommend changing the default installation folder to **C:\Renesas\FDT**.

Project files included in the SDK have been written with FTD installed in C:\Renesas\FDT directory.

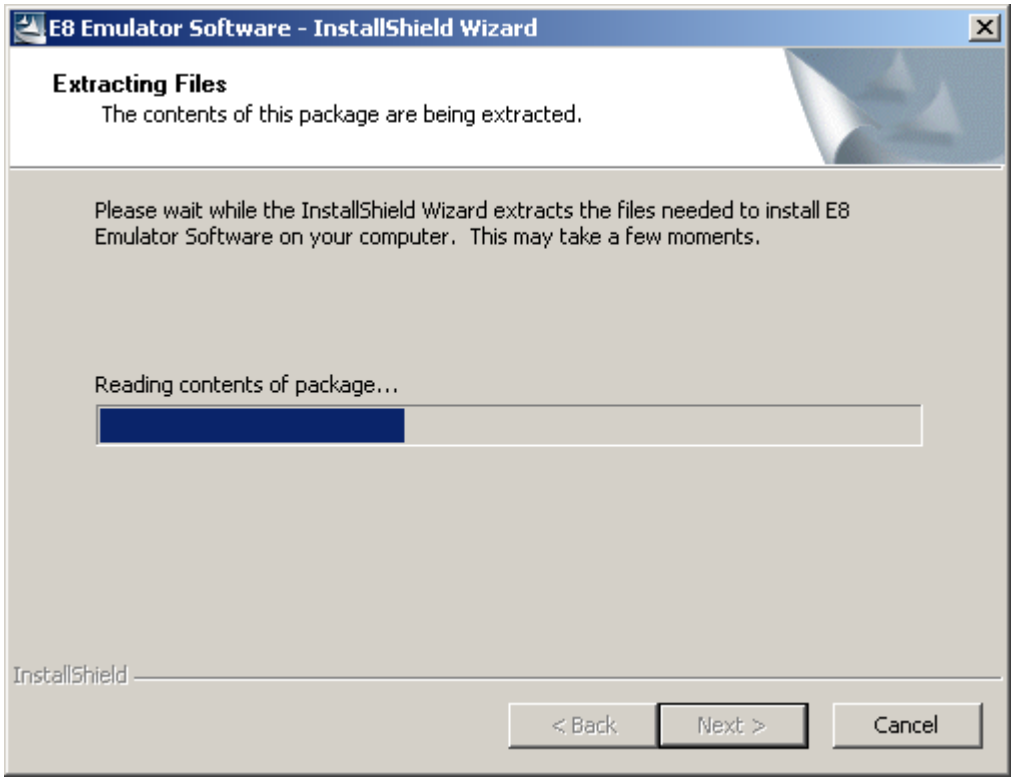
If you select another directory, you'll have to edit the project files manually before being able to use them.



- Next screen : click « Install ».
- Wait until the installation ends.

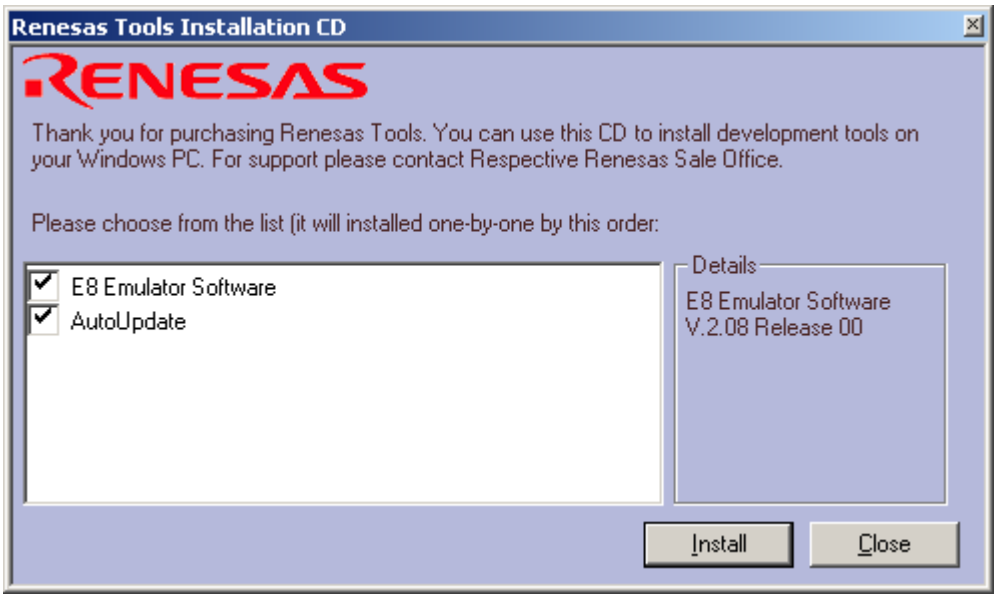
3.3. INSTALL E8 EMULATOR SOFTWARE

- Launch the E8 Emulator Software installation program that has been downloaded in previous chapter.

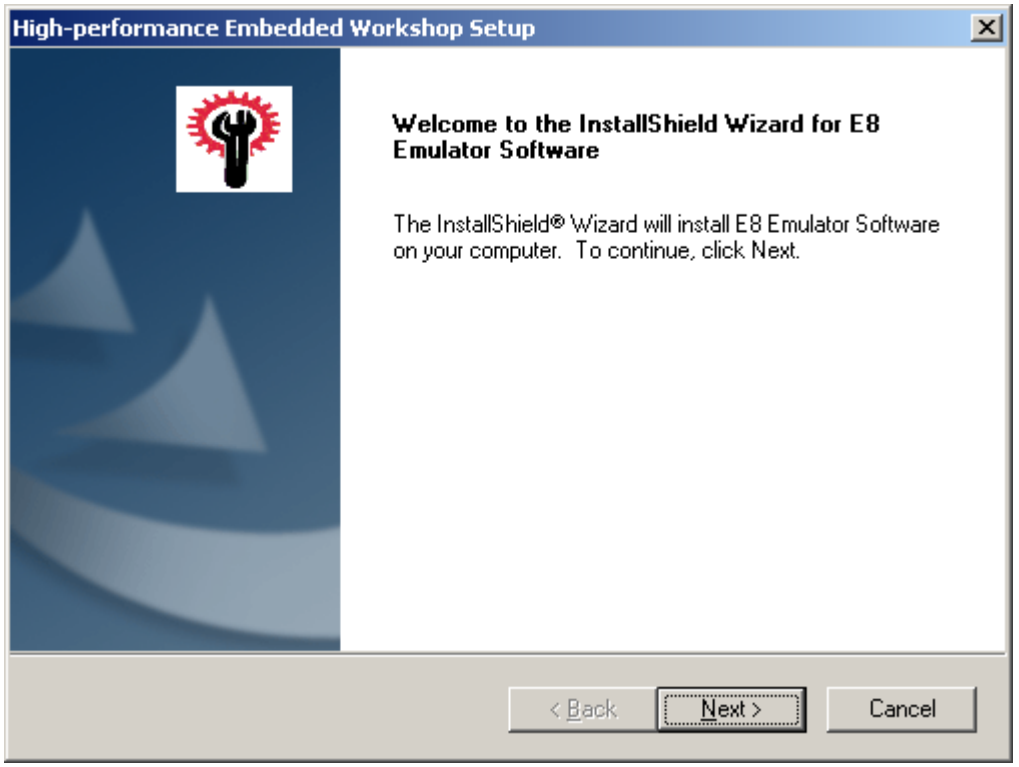


- Next screen : select the tools to be installed. You must install E8 Emulator Software. You can optionally install the AutoUpdate tool[3].

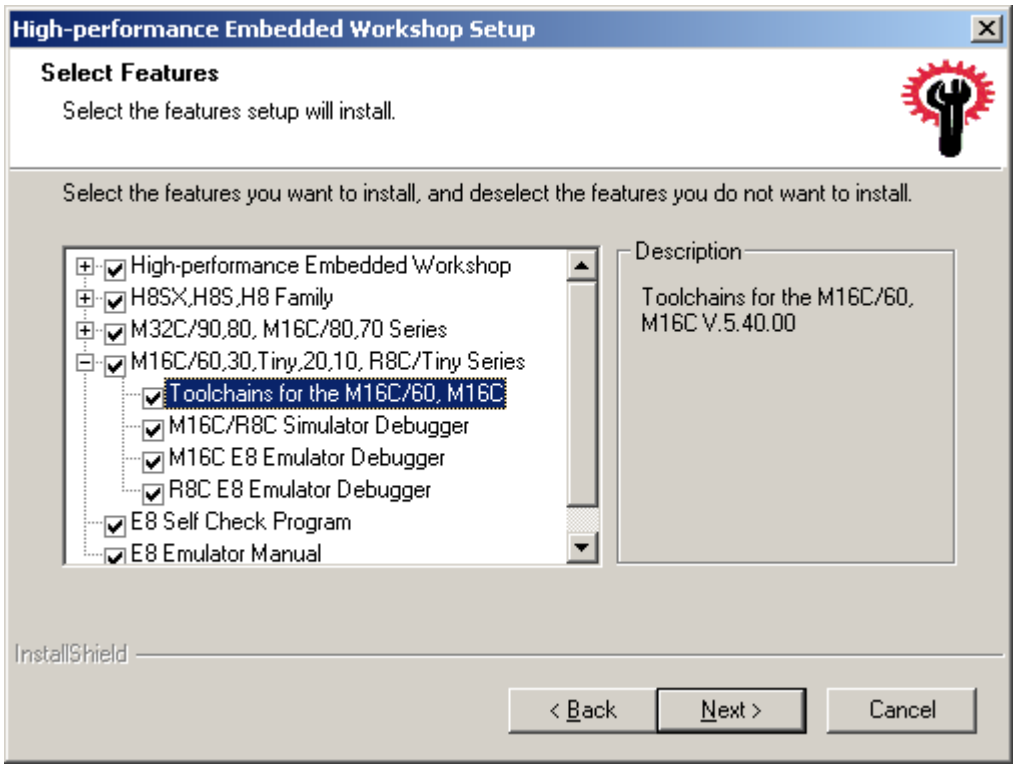
[3] The AutoUpdate tool periodically downloads newest releases of the installed software from the Renesas web site.



- Click « Install ». Installation begins with E8 Emulator Software.
- Next screen : choose setup language.
- Next screen : welcome screen.



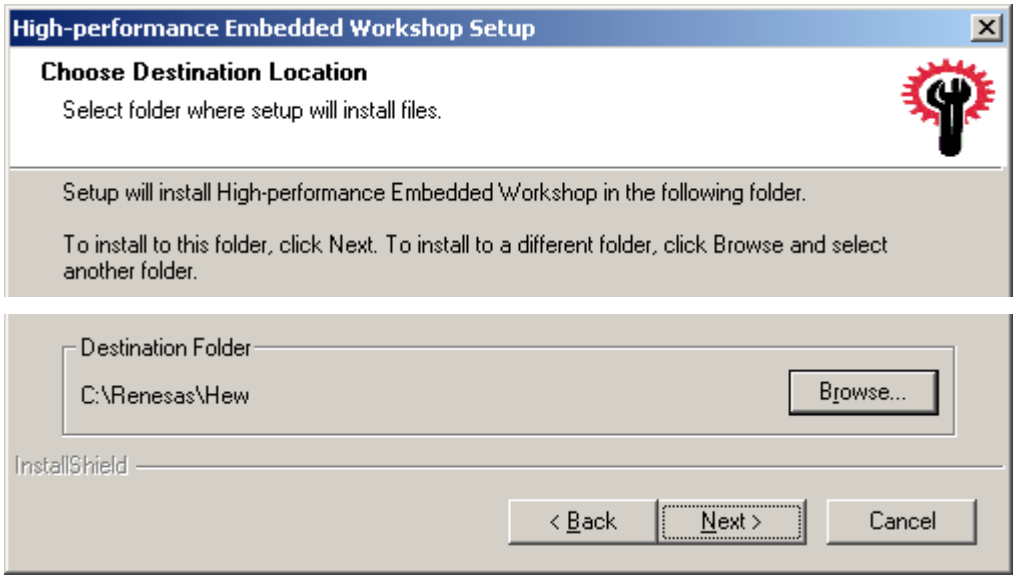
- Next screen : licence agreement.
- Next screen : select your region (Europe, US or other).
- Next screen : select features to be installed. We'll need at least the « High-performance Embedded Workshop » application and the «Toolchains for the M16C/60, M16C » in « M16C/60,30,Tiny,20,10,R8C/Tiny Series ». Other items are optional.



- Next screen : choose destination location. We *strongly* recommend changing the default installation folder to **`C:\Renesas\HEW`**.

Project files included in the SDK have been written with HEW installed in `C:\Renesas\HEW` directory.

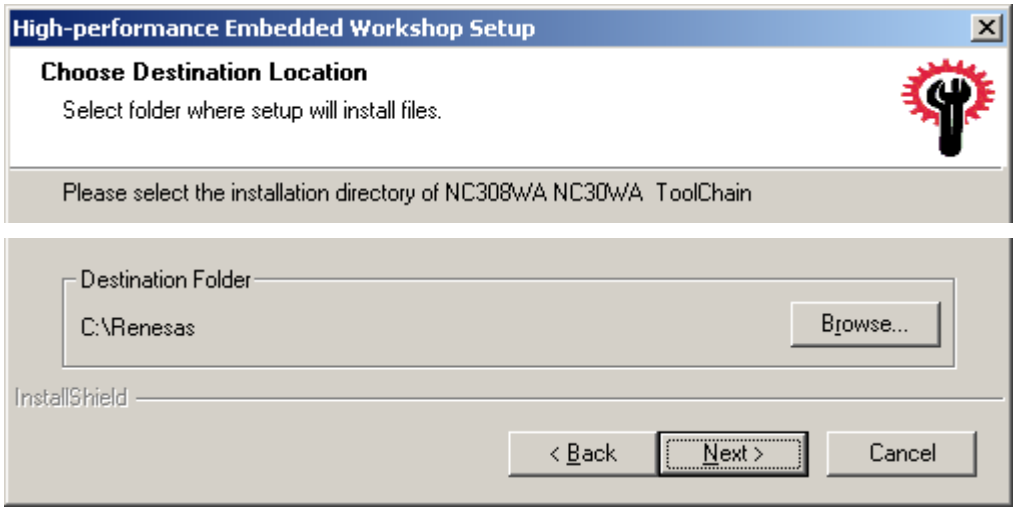
If you select another directory, you'll have to edit the project files manually before being able to use them.



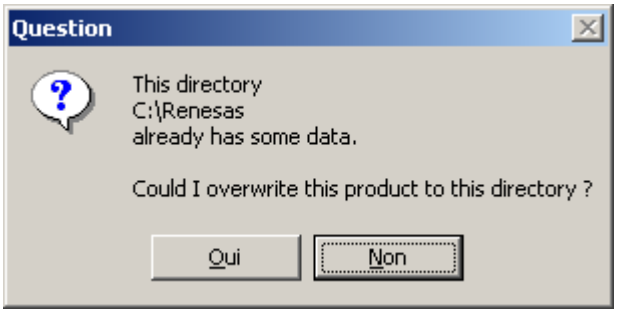
- Next screen : choose destination location for the toolchains. We *strongly* recommend changing the default installation folder to **C:\Renesas**.

Project files included in the SDK have been written with the tool chain installed under C:\Renesas directory.

If you select another directory, you'll have to edit the project files manually before being able to use them.



- Next screen : you'll be prompted to overwrite the content of **C:\Renesas**. Click « Yes »



- Next screen : start copying files.
- Wait until the installation ends.

If you've selected the AutoUpdate tool, the installation goes on with AutoUpdate setup. Once installed, AutoUpdate connects to Renesas' web site to retrieve updated versions of installed softwares.

4. INSTALL SDK FILES

- Unzip SDK package (**sdk-k531_ins_X-XX.zip**) to a temporary folder.
- Launch the **install.cmd** installation script.

The installation script copies the SDK package into the **C:\Renesas\Pro-Active_K531_INS_R8C-25** folder.

Manually edit the installation script if you need to change this location.

Note that you'll have to manually update all HEW projects included in the SDK according to the new location.

The installation script will overwrite any change already performed in the **C:\Renesas\Pro-Active_K531_INS_R8C-25** folder, without confirmation.

Do not launch the installation script again after having worked on the SDK, as it will overwrite any change made in the SDK files, without confirmation.

- Wait during file copy.

At the end of the installation script, HEW is launched. HelloWorld project is selected. You can now read the « SDK K531/INS : Developer's guide ».

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EDITOR'S INFORMATION

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R.C.S. EVRY B 429 665 482 - APE 722 Z

For more information, please contact us at info@pro-active.fr .