

# **PicoSDR 2<sup>nd</sup> Generation Software Tools Installation Guide**

## Revision history

Revision	Date	Comments
1.0	October 2016	First release of the PicoSDR 2 <sup>nd</sup> Generation Software package
1.1	January 2017	Updated for release 1.1

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# 1 Installation on Windows 7

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This section describes how to install, configure, and update Nutaq's PicoSDR 2<sup>nd</sup> Generation Software Tools on a computer running the Windows 7 operating system. A system properly set up to work with the Nutaq development tools allows FPGA and host development for the Perseus platform.

For operating details, please refer to the documentation library accompanying the product.

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## 1.1 Requirements for PicoSDR 2<sup>nd</sup> Generation Software Tools for Windows

This section presents the requirements that must be met by the system in order to use the PicoSDR 2<sup>nd</sup> Generation software tools.

### 1.1.1 System Requirements

#### Hardware

A PC with the following characteristics:

- Processor of 64 bits (x64), 1 GHz or faster
- 10 GB of RAM or more
- Free HDD space — 50 GB or more

#### Operating System

- Windows 7, 64 bits

### 1.1.2 Software Requirements

Only the software versions presented below are supported.

#### Essential BSDK Development Software

- Xilinx ISE Design Suite 14.7 Embedded Edition or System Edition (essential for FPGA development)

#### Essential MBDK Development Software

- MATLAB R2013B (64-bit installation)
  - Signal Processing Toolbox
  - MATLAB Simulink
- Xilinx ISE Design Suite 14.7 System Edition (essential for FPGA development)
  - Xilinx System Generator 14.7
- Adobe Acrobat Reader DC
- TFTP software

#### Note:

Model-based design software is only essential to those who purchase the Nutaq model-based design kit (MBDK).

Before installing Nutaq software, you must install all non-Nutaq software. Refer to the documentation relative to each third-party installation for details.

#### Important:

If you are using MBDK, **install MATLAB before** Xilinx ISE Design Suite 14.7 System Edition.

#### WARNING

Nutaq software cannot function when MATLAB is installed in a folder containing the space character, for example, "Program Files". We suggest that you install MATLAB in the "C:\MATLAB\R2011b" directory.

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## 1.2 Installing/Modifying/Removing PicoSDR 2<sup>nd</sup> Generation Software Tools

### 1.2.1 Software Updates

Periodically visit the Nutaq product page at <http://www.nutaq.com/support/latest-utca-edition> to verify whether there are updates for your Nutaq software.

**Note:**

If you are unsure of the software version you are using, check the release notes of the installation on your computer or the documentation on the USB license dongle that came with the product.

### 1.2.2 Firmware Updates

Every time an installation of a new version of the Nutaq PicoSDR 2<sup>nd</sup> Generation Software Tools is performed, and before proceeding with anything involving the PicoSDR hardware, we recommend verifying that the Linux firmware contained in the flash memory of the Perseus is compatible and to update it if needed. Please refer to the *Perseus Firmware Update* document for details about the firmware update operation.

### 1.2.3 USB dongle

The USB dongle provided with your PicoSDR 2<sup>nd</sup> Generation Software Tools purchase contains the license information for the product options you selected. It is also a flash drive that contains the latest PicoSDR 2<sup>nd</sup> Generation Software Tools version at the moment of the purchase and some documentation. You must leave the dongle connected to your computer when installing PicoSDR 2<sup>nd</sup> Generation Software Tools and compiling a bitstream with the MBDK toolset. PicoSDR 2<sup>nd</sup> Generation Software Tools can be installed on as many computers as you require, as long as they meet the minimum system requirements.

### 1.2.4 MBDK Software Lock

The model-based part of Nutaq PicoSDR 2<sup>nd</sup> Generation Software Tools is protected by a locking mechanism. Since the compilation of a bitstream with MBDK requires a valid USB dongle to be connected to the system, you will only be able to perform this operation on one system at a time.

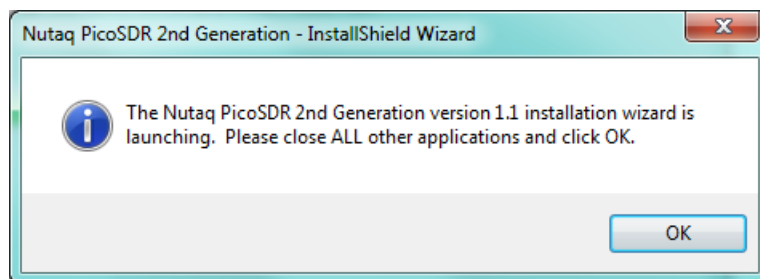
### 1.2.5 Performing the Installation

1. Connect the provided USB dongle to your computer. Let the driver installation finish, if applicable.
2. Navigate to the base directory of the USB dongle and double-click on the application file (PicoSDR\_2ndGen\_Software\_Tools\_1\_1\_0.exe) to launch the installer.

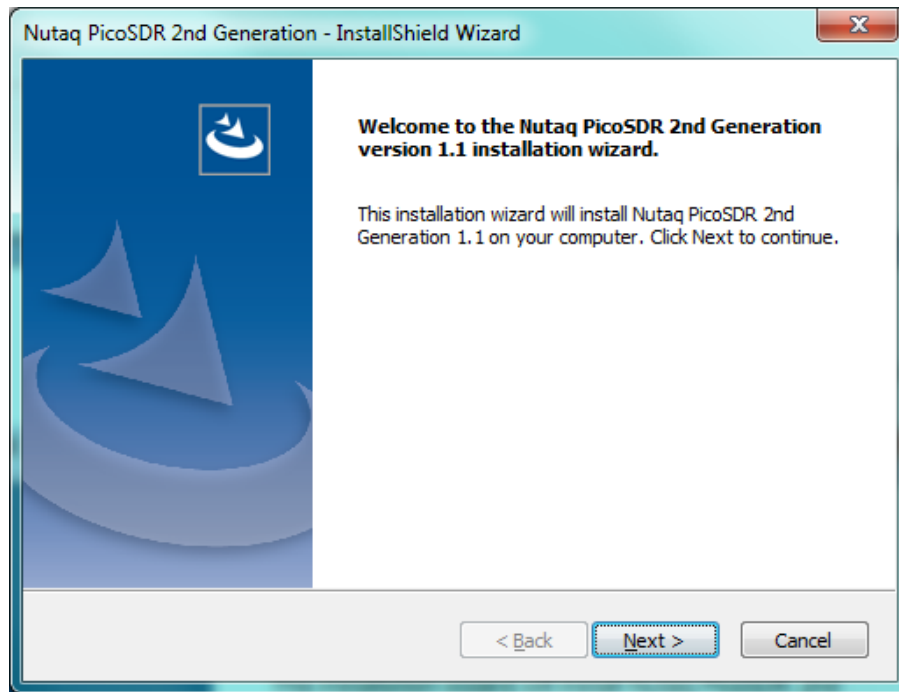
**Note:**

If using an installation application downloaded from Nutaq's Web site to perform the installation, double-click the application file (PicoSDR\_2ndGen\_Software\_Tools\_1\_1\_0.exe) that was saved on the computer.

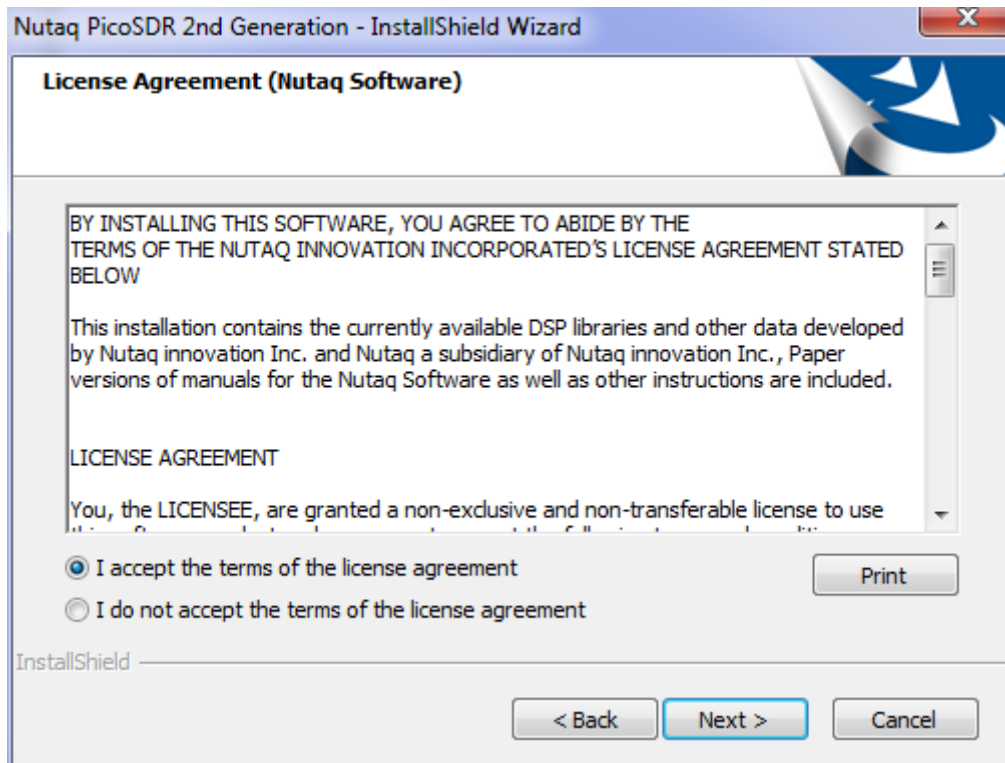
3. The installer will prompt you to close all other applications. Once this is done, click **OK**.



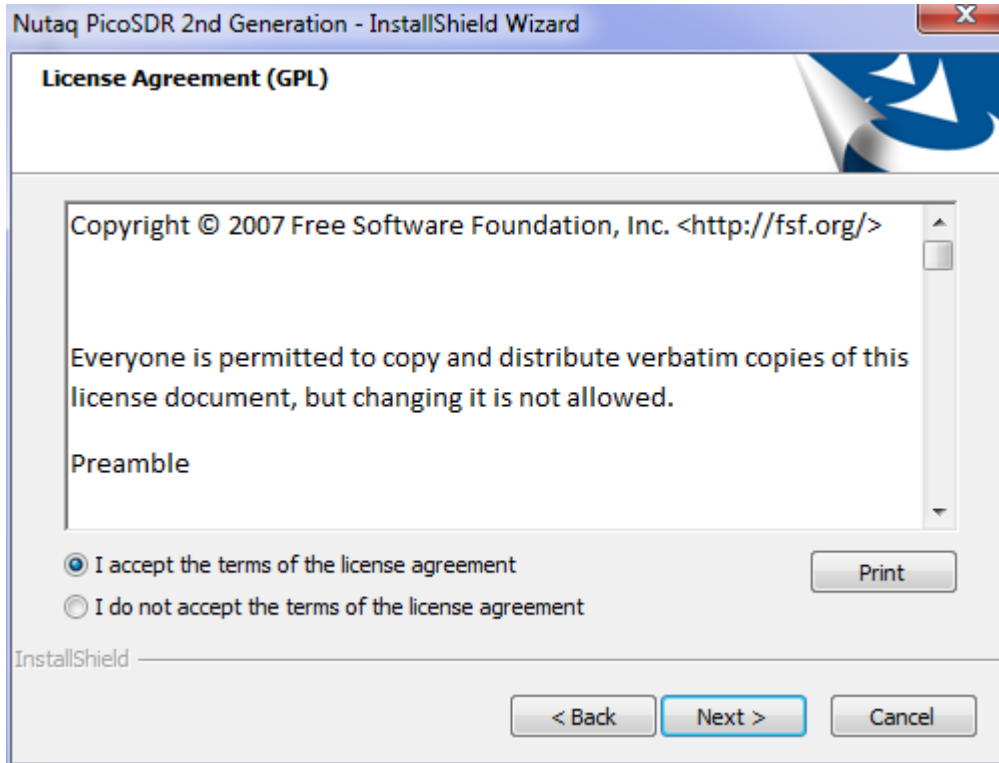
4. Click **Next**.



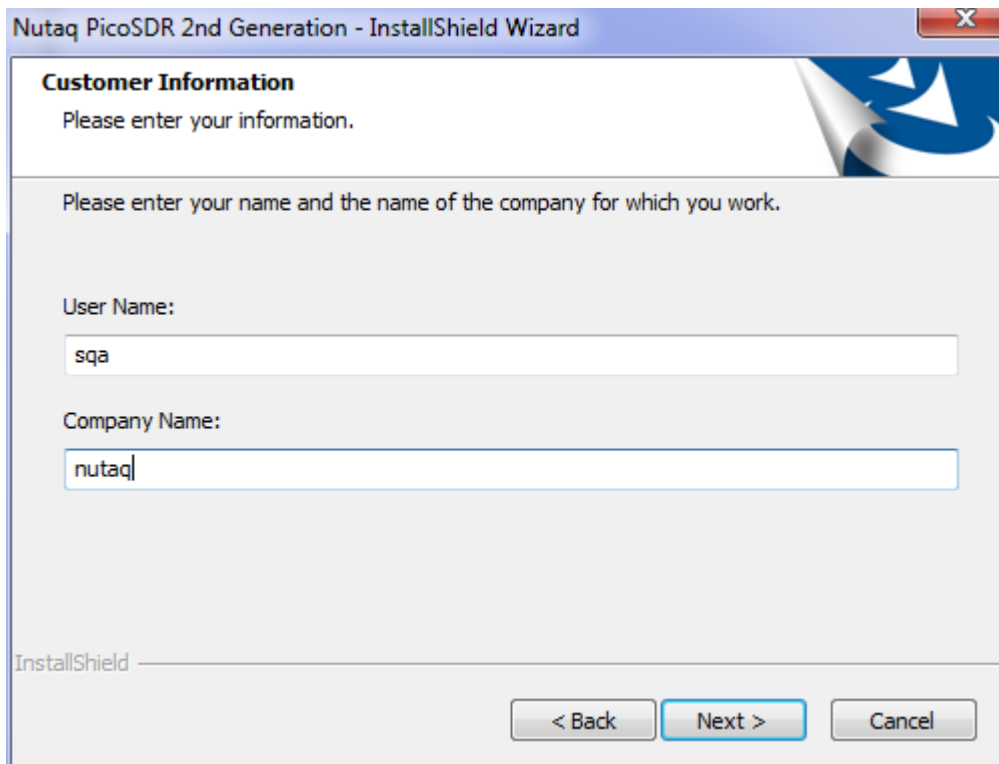
5. In the **License agreement (Nutaq Software)** dialog box, carefully read the Nutaq license agreement, select the **I accept the terms of the license agreement** option to continue, and click **Next**.



6. In the **License agreement (GPL)** dialog box, carefully read the GPL agreement, select the **I accept the terms of the license agreement** option to continue, and click **Next**.

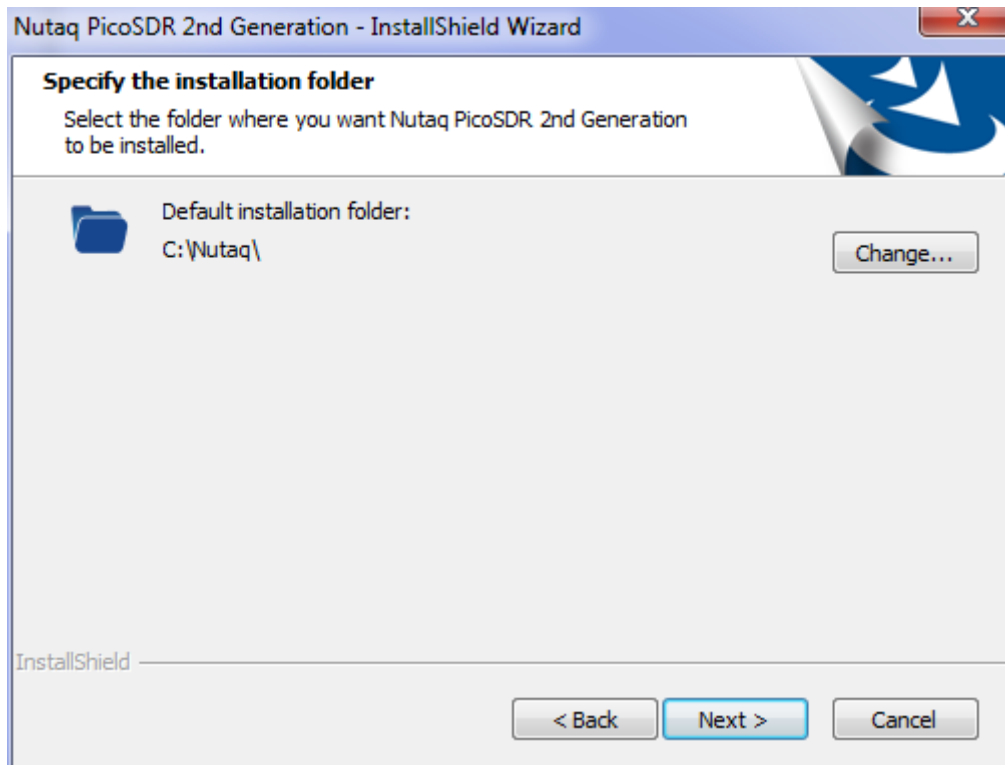


7. In the **Customer Information** dialog box, type your name, type the name of your organization, and click **Next**.

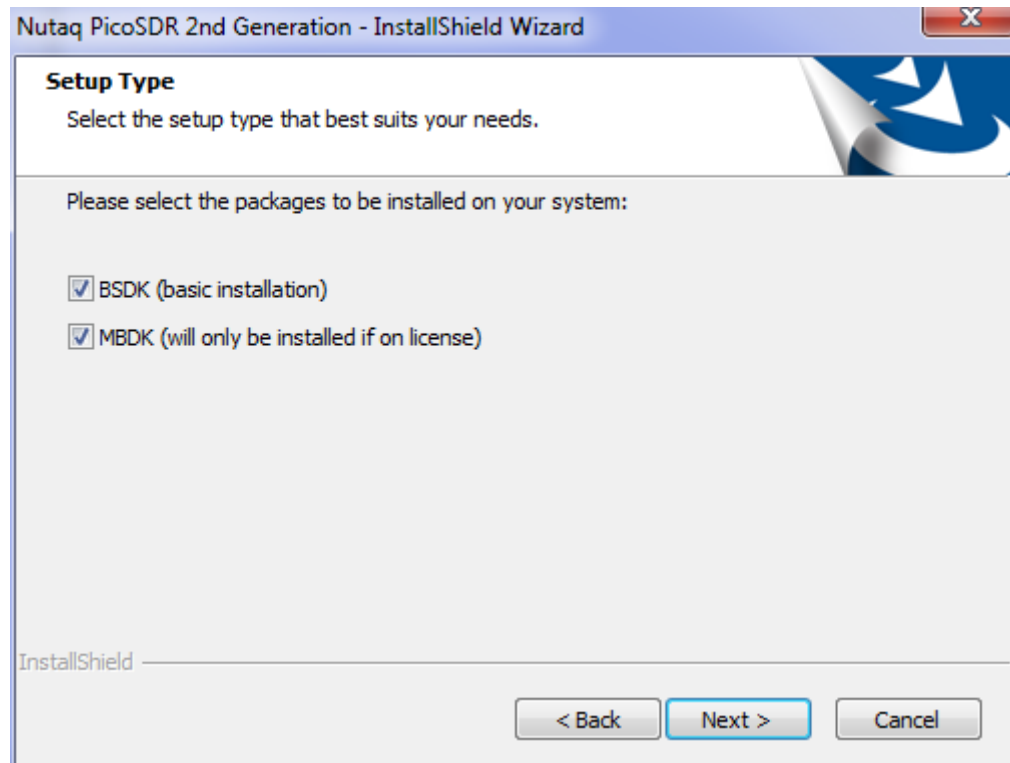




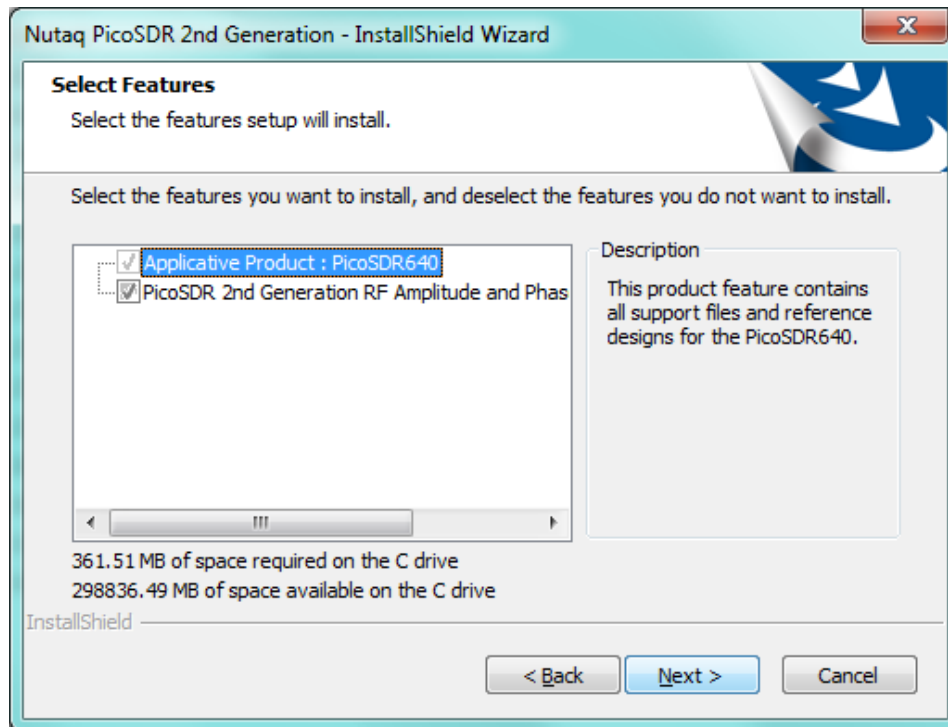
- In the **Installation folder** dialog box, select the installation folder for PicoSDR 2<sup>nd</sup> Generation Software tools on your system and click **Next**. You must select a path without the space character in it. C:\Nutaq\ is used as default.



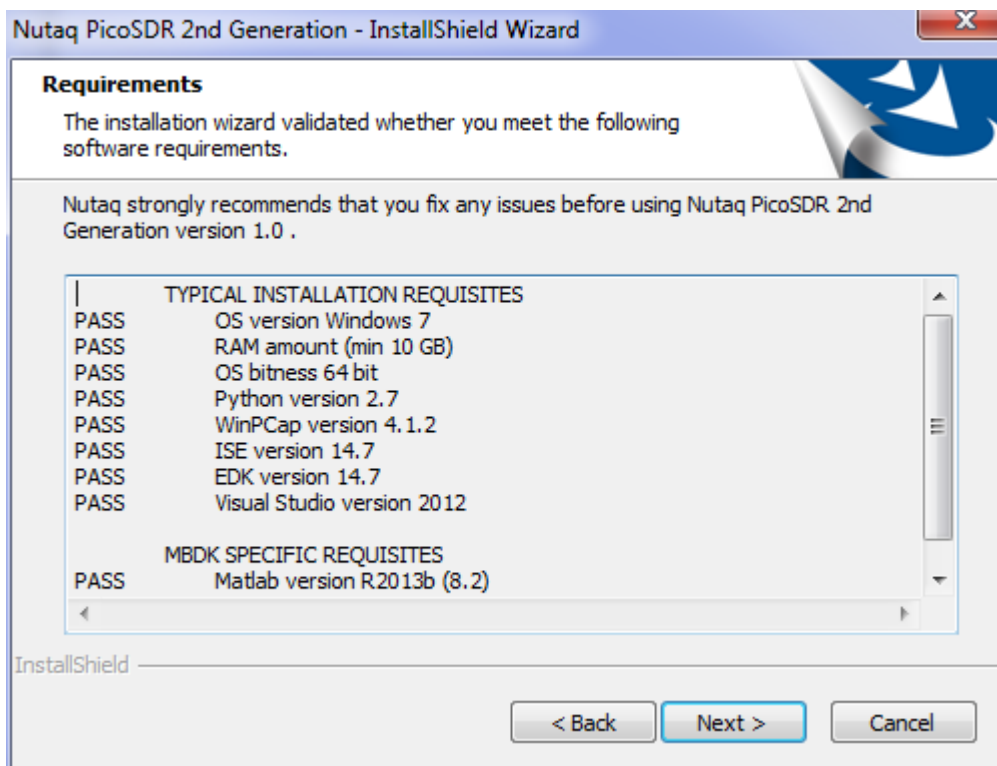
- Select the packages you would like to install.



10. If the PicoSDR 2<sup>nd</sup> Generation Amplitude and Phase Calibration licence is present, select the installation of the reference design by checking the checkbox. If it is not present, this screen will not be shown.



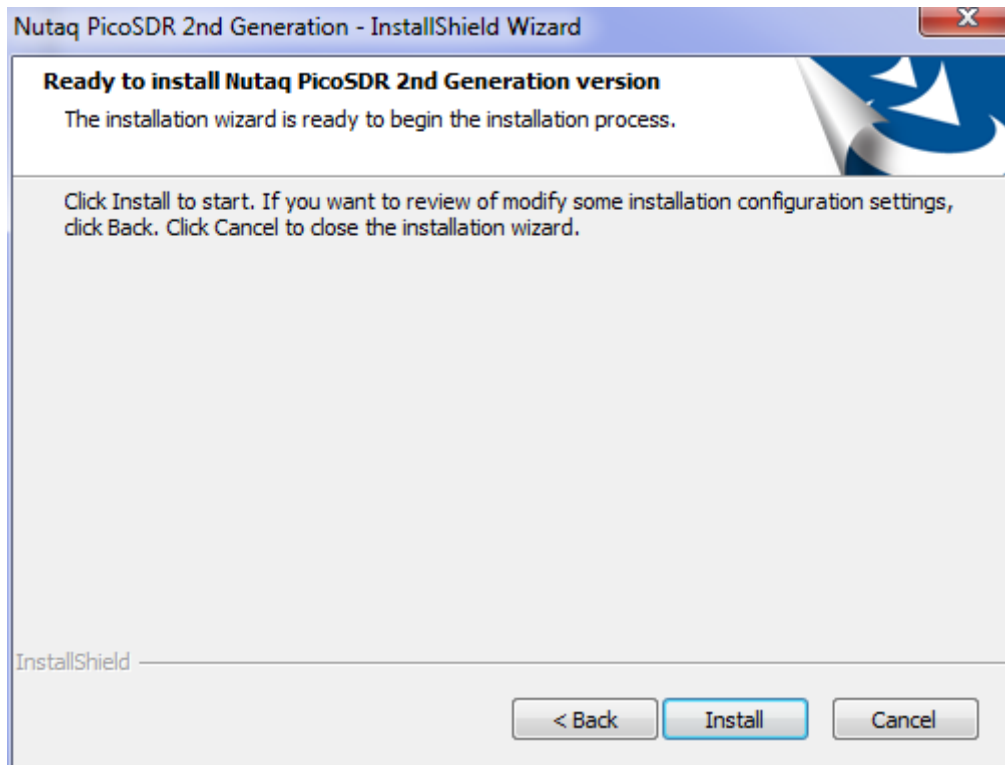
11. In the **Installation Requirements** dialog box, validate that all requisites are present on the system and click **Next**.



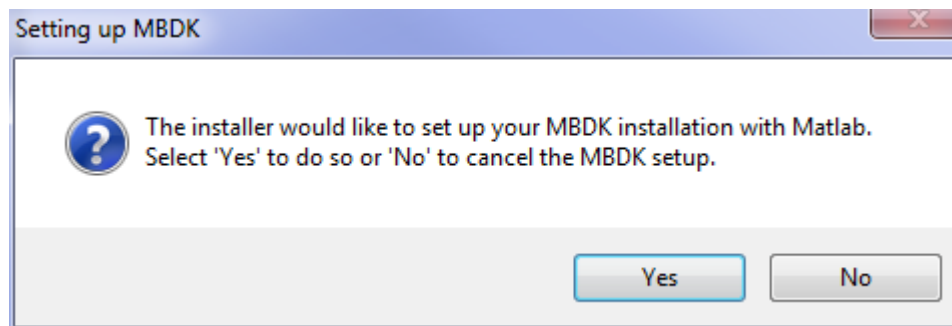
**WARNING**

Nutaq PicoSDR 2<sup>nd</sup> Generation Software Tools can be installed even if third-party software requirements are not met. However, if one or more requirements are not met, PicoSDR 2<sup>nd</sup> Generation Software Tools may not perform as expected. **It is recommended to correct any issues before proceeding.**

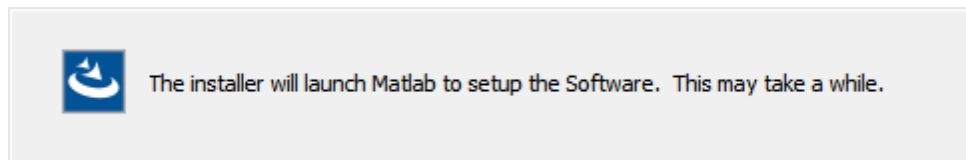
12. Click **Install**.



13. Wait while the installer transfers files on your system.
14. You will be asked if you want the installer to manage the automatic configuration of Matlab for use with the PicoSDR 2<sup>nd</sup> Generation Software Tools. Click **Yes**.



The installer will launch MATLAB and its setup script.



15. When the installation is complete, click **Finish**. If prompted to restart the computer, please do so. The installation of PicoSDR 2<sup>nd</sup> Generation Software Tools is now complete.



**InstallShield Wizard Complete**

The InstallShield Wizard has successfully installed Nutaq PicoSDR 2nd Generation. Click Finish to exit the wizard.

< Back

Finish

Cancel

## 1.2.6 Removing PicoSDR 2<sup>nd</sup> Generation Software Tools for Windows

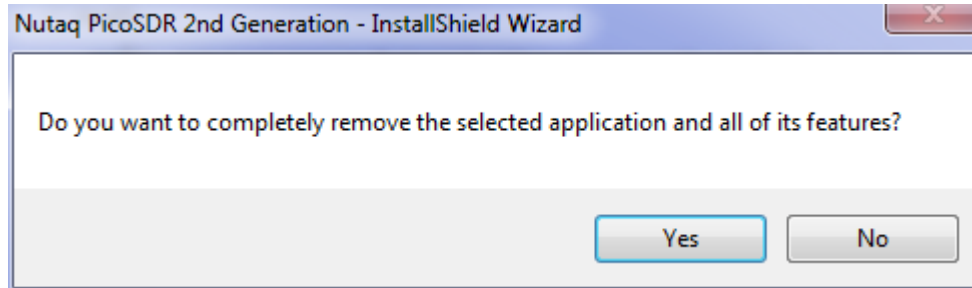
To remove the PicoSDR 2<sup>nd</sup> Generation Software Tools, perform the following steps:

1. In **Control Panel> Programs and Features**, select **Nutaq PicoSDR 2<sup>nd</sup> Generation** and click **Uninstall**.

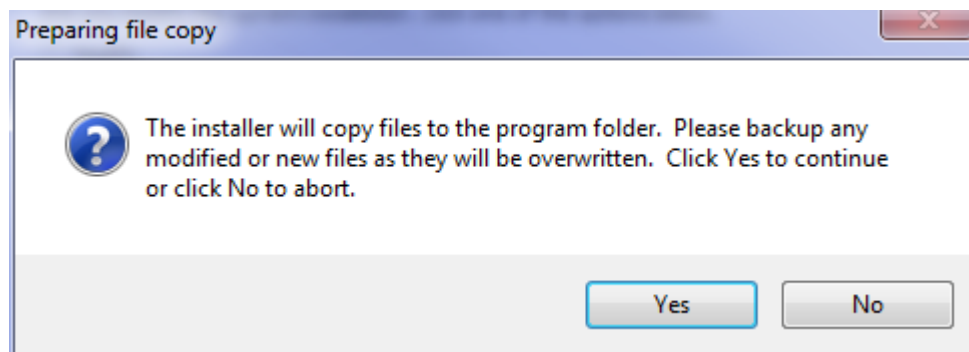
OR

In **Start Menu>All Programs>Nutaq>Uninstall** click **Uninstall Application**.

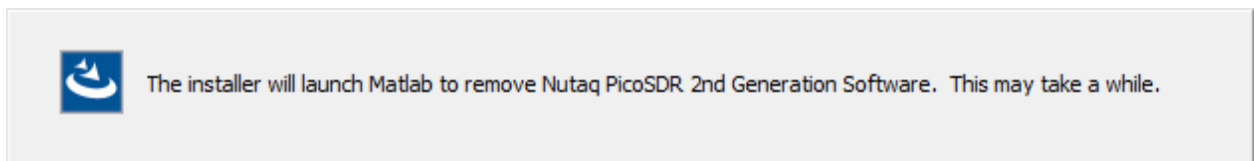
2. In the dialog that opens, click **Yes**.



3. The installer will inform you that it is modifying the contents of the program folder. Backup any important work in another directory. Click **Yes**.



4. While removing files from the system, the installer will indicate that it is launching Matlab to remove the PicoSDR 2<sup>nd</sup> Generation Software Tools configuration. Do not try to abort the installer at this step.



5. When the uninstall is complete, click **Finish**. If you are prompted to restart your computer, please do so.

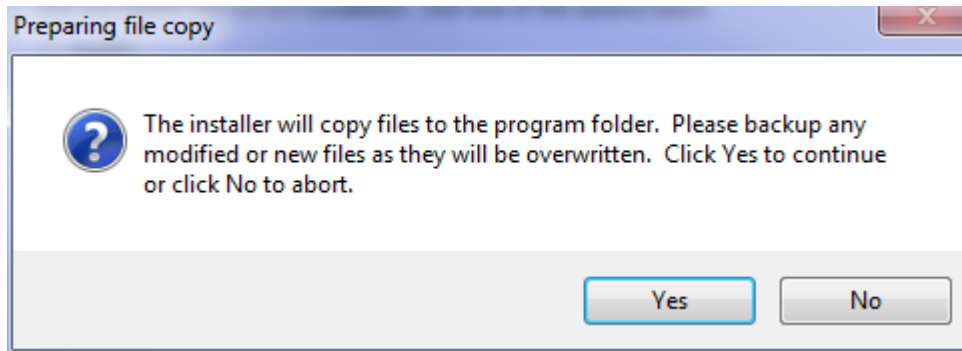
## 1.2.7 Updating to a new version of PicoSDR 2<sup>nd</sup> Generation Software Tools or activating a new software component

To update to a new version of PicoSDR 2<sup>nd</sup> Generation Software Tools or add a new software component:

1. Download the latest PicoSDR 2<sup>nd</sup> Generation Software Tools version from the product page on the Nutaq Web site at <http://www.nutaq.com/support/latest-utca-edition>.
2. If necessary, transfer the application file that you have downloaded to the system where you want PicoSDR 2<sup>nd</sup> Generation installed.
3. Double-click on the application file.
4. Select **Modify**.
5. Proceed to step 3 of the “Performing the Installation” section. Select packages and features as needed.

## 1.2.8 Restoring your PicoSDR 2<sup>nd</sup> Generation Software Tools installation to its default state

1. In **Control Panel**> **Programs and Features**, select Nutaq PicoSDR Software 2<sup>nd</sup> Generation Tools and click **Change**.
2. Select **Repair**.
3. The install will inform you that it is modifying the contents of the program folder. Backup any important work in another directory. Click **Yes**.



4. When the repair is complete, click **Finish**. If you are prompted to restart your computer, please do so.

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## 1.3 PicoSDR 2<sup>nd</sup> Generation Software Tools - Utilities

### 1.3.1 Updating MATLAB Paths

1. Close all MATLAB applications.
2. To start the MATLAB update script, on the Windows **Start** menu, point to **All Programs> Nutaq** and click **Setup MATLAB**.

This automatically starts MATLAB and adds paths and plug-ins necessary to PicoSDR 2<sup>nd</sup> Generation Software Tools.

### 1.3.2 Accessing the PicoSDR 2<sup>nd</sup> Generation Software Tools Documentation

PicoSDR 2<sup>nd</sup> Generation Software Tools come with a library of documents that is installed on the hard disk of the computer when you install Nutaq software.

All the documents are in PDF format. Adobe Reader must be installed on the computer to view them. You can download the latest Adobe Reader from the Adobe Systems Web site ([www.adobe.com](http://www.adobe.com)).

To access the documentation:

- On the Windows **Start** menu, point to **All Programs> Nutaq** and click **Documentation**.

Windows Explorer then opens the folder containing the documentation.

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## 1.4 Support on installation

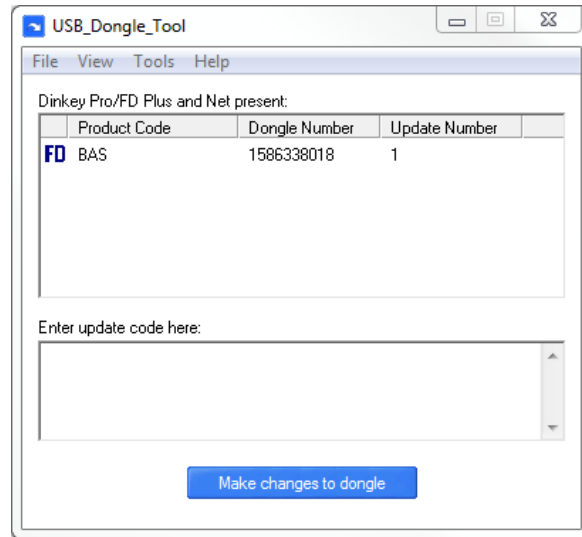
If you are experiencing problems installing PicoSDR 2<sup>nd</sup> Generation Software Tools on your computer, please contact Nutaq's support personnel at [support@nutaq.com](mailto:support@nutaq.com).

Please provide the archive MM-DD-YYYY\_HH-MM-SS\_NutaqPicoSDRInstall\_Log.txt.zip attached to your message. It is located in the root directory of your installation folder (C:\Nutaq\PicoSDR640 by default).

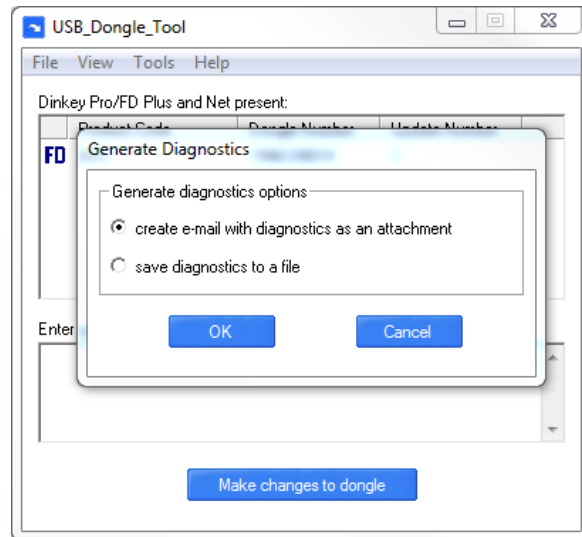
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## 1.5 Acquiring new software packages or getting a license renewal

1. Connect the USB dongle to your computer.
2. On the Windows **Start** menu, point to **All Programs> Nutaq** and click **USB dongle utility**.



1. In the USB dongle utility software, select **Tools>Generate diagnostics**.
2. In the dialog box, select **create e-mail with diagnostics as attachment**. Click **OK**.

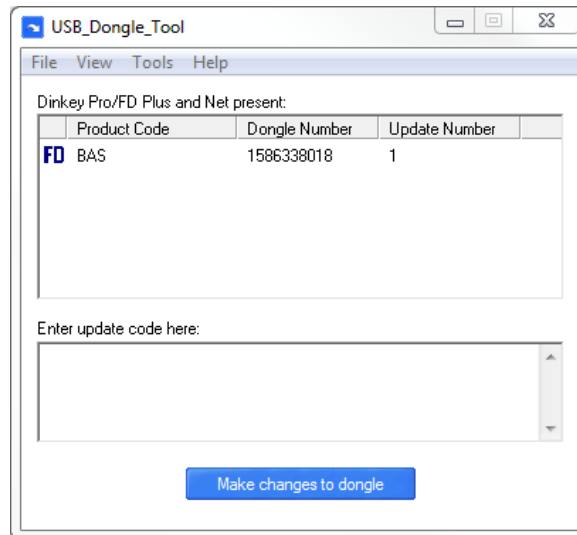


3. Send the message to [support@nutaq.com](mailto:support@nutaq.com).



## 1.6 Applying license updates to your USB dongle

1. Connect the USB dongle to your computer.
2. On the Windows **Start** menu, point to **All Programs> Nutaq** and click **USB dongle utility**.



3. In the USB dongle utility software, enter your update code in the text box. The update code is provided by Nutaq support on the purchase of newer software packages or a license renewal.
4. Click **Make changes to dongle**.
5. Refer to sections 1.2.7 and 1.2.8 of this document to perform software updates.

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## 2 Installation on Linux Ubuntu 12.04.5 LTS

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This section describes how to install Nutaq's PicoSDR 2<sup>nd</sup> Generation Software Tools on a PC running the Ubuntu 12.04.5 operating system.

The Linux installation contains the tools and drivers necessary for Linux-based host development.

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### 2.1 Requirements for PicoSDR 2<sup>nd</sup> Generation Software Tools for Linux

This section presents the requirements that must be met by the system on which the PicoSDR 2<sup>nd</sup> Generation Software Tools are installed.

#### 2.1.1 Host Computer

##### Hardware

- x86\_x64 architecture
- 1-GB RAM

##### Operating System

- Ubuntu 12.04.5

#### 2.1.2 $\mu$ TCA Chassis Host

##### Hardware

- 16-GB USB stick
- Analog display
- USB hub equipped with four ports or more
- USB keyboard
- USB mouse
- USB optical disc drive

##### Operating System

- Ubuntu 12.04.5

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## 2.2 Installing PicoSDR 2<sup>nd</sup> Generation Software Tools for Linux

### 2.2.1 Preparing the system

1. Make sure the user account used has administrator rights and can use the command `sudo`.
2. Update the system prior to the installation using the user interface tools or through a terminal with the command:
  - `sudo apt-get upgrade`
3. Install the standard development packages on the system using the user interface tools or through terminal with the commands:
  - `sudo apt-get install build-essential`
  - `sudo apt-get install libpcap-dev`
  - `sudo apt-get install libtool`

### 2.2.2 Performing the Installation

Use the following commands to install the package:

- `sudo dpkg -i nutaq-picosdr-2ndgen-sdk-1.1.0-1_amd64.deb`

### 2.2.3 Configuring the Environment

1. Modify the installation folder owner with:
  - `sudo chown -R {username} //opt/Nutaq`
2. Modify the installation folder group with:
  - `sudo chgrp -R {username} //opt/Nutaq`
3. Modify the installation folder permissions with:
  - `sudo chmod -R +x //opt/Nutaq`
4. Modify the cache folder permissions with:
  - `sudo chown -R {username} //var/cache`

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## 2.3 Removing PicoSDR 2<sup>nd</sup> Generation Software Tools for Linux

To uninstall PicoSDR 2<sup>nd</sup> Generation Software tools simply run the command:

```
sudo dpkg --purge nutaq-picosdr-2ndgen-sdk
```